# The Iron

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Four-Ton Power Walking Crane.

This crane, which we fully illustrate in this issue, is designed and made by the Yale

beams run the large guide roller A and the four small guide rollers rrr, Figs.

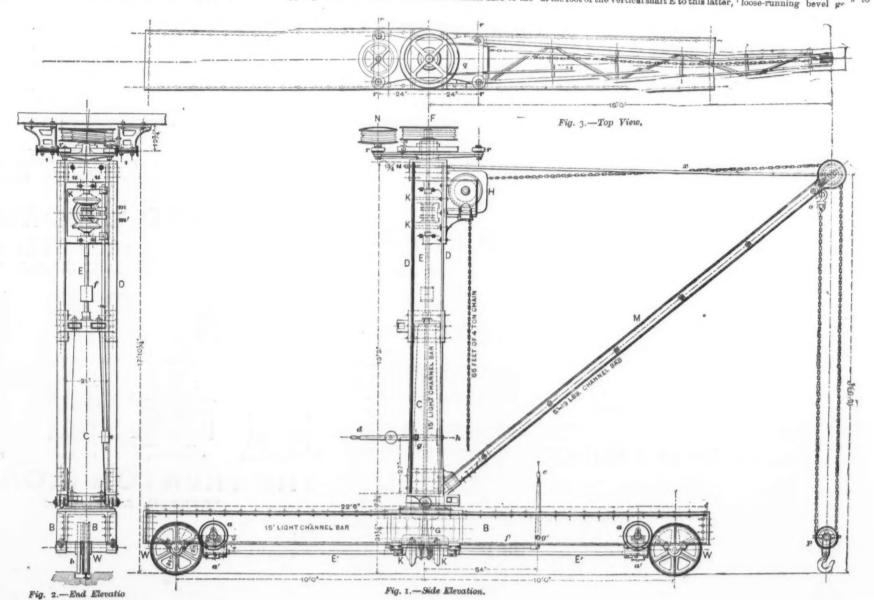
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beams run the large guide roller A and worm, a' a'. These dinal shaft are the beveled gears K and K' which are mounted on short transverse and the disk clutches L and L' (shown in the truck-wheels w W. at the foot of the vertical shaft E to this latter, loose-running bevel gears.

In the four small guide roller A and worm, a' a'. These dinal shaft are the beveled gears K and K' which are mounted on short transverse and the foot of the vertical shaft E to this latter, loose-running bevel gears.



Lock Mfg. Co., of Stamford, Conn, for the Roanoke Machine Co., of Roanoke, Va. As will be seen from the accompanying cuts, it is a traversing jib-crane, and consists of the base, the mast, the jib and the traversing and hoisting mechanisms. The base is formed of two 15-inch light channel bars, B B, Figs. 1, 2 and 5, which are 20 inches apart, and held in that position by cast-iron separators at the ends, and by the cast-iron base of the column C in the center. Between these channel bars, and 15 inches from each end, is a double-flanged truck-wheel, W, upon which two wheels the base is mounted. The base also contains the traversing mechanism which will be explained further on.

On this base is securely mounte cast-iron column, C, Figs. 1 and 2, 8 feet high, and 18 inches in diameter at the bottom and 12 inches in diameter at the pand bottom of the column are provided with a circular turn-path for the thrust-rollers to

and bottom of the column are provided with a circular turn-path for the thrust-rollers to travel upon. Over this column is set the mast D, Figs. 1, 2 and 5, which is composed of two 15-inch light channel bars 21 inches apart, and held in position by castings at the top, center and bottom. The bottom casting, which also receives the foot of the jib, has a pair of cone-rollers which receive the vertical trains which receives the vertical strains which tracking upon the coned part. strains while traveling upon the coned part at the base of the column. The center cast-ing has thrust-rollers which run upon the top of the column C, and these take up the over-turning strains. Through the mast D and the column C passes the vertical shaft E, Figs. r and 2, to the upper end of which the driving-wheel F is keyed. By means of this shaft the power of the driven rope is transmitted to both the traversing and the hoisting and lowering mechanism, as will presently be shown. Bolted to the mast is the cast-iron housing H, Fig. 1, which contains the crab mechanism.

The jib M, Figs. 1, 3 and 5, is composed of two 5-inch channel bars, suitably braced, as shown in Fig. 3, and riveted at its lower end to the casting at the foot of the mast; its upper end is supported by two tension rods, x, which pass through the top of the mast and are secured by nuts and jamb-nuts

E&F 0/ rods, z, which pass through the top of the mast and are secured by nuts and jamb-nuts for adjustment, as shown at u, Figs. 1 and 2. This upper end of the jib holds the sheave over which the hoisting-chain passes. This chain is hooked into a clevis, o, when used in connection with the bottom block p, for full loads; for light loads, in order to increase the speed, the block p is dispensed with and the speed, the block p is dispensed with and the speed, the block p is dispensed with and in position at the base by the flanged truck roller plate q, which carries the idler N. base. On these tranverse shafts are also mounted spur pinions, engaging with the spur phases, v, Figs. 2 and 5, which run the whole length of the building, secured to the proof overhead, and between which two for overhead, and between which two

effected by means of the lever c, which is pivoted at g', Fig. 1, and moves the shipporrod f', which has at its further end two forks, such as are shown on the vertical shipperrod f at m m' in Fig. 2. These forks fit into the collars n n' (see Fig. 4), and operate the toggles t t', by which the sliding hub w or w brings the disk clutches L or L into friction contract, with the head goar and causes the

brings the disk clutches L or L' into friction contract with the bevel gear, and causes the shaft to revolve with the same.

When the lever c is in a vertical position the collars n n' are in a neutral position, hence holding the toggles t t' in such a position as to admit of the gear wheels running loose upon the shaft. Motion of the shaft in the opposite direction is therefore effected by the locking of the opposite bevel gear to the opposite direction is therefore effected by the locking of the opposite bevel gear to it. The hoisting mechanism is located in the mast D, as shown at K in Fig. 1, and consists of precisely similar bevel gears and disk clutches, and is fully illustrated by changing the position of the details in Fig. 4 from the horizontal to a vertical position, with only this difference—that a collar, as shown in Fig. 4, is used for the support of the upper bevel gear on the vertical shaft, to prevent the weight of the gear from automatically effecting the friction contact of the disk effecting the friction contact of the disk clutches. The hoisting mechanism is operated by the lever d, placed at proper hight above the floor, pivoted at g and latched at h, Fig. 1, when in the neutral position.

The crab mechanism is contained in the bearing the and consists of a the floor.

housing H, and consists of a shaft upon which is mounted a worm-wheel to which is cast a chain-wheel. This worm-wheel has a bronze rim with cut teeth. The chain-wheel has pockets, with which the chain engages, thus obviating the use of a drum. The housing also contains a worm-shaft, placed at right angles to the worm-wheel shaft, having at the end within the housing the worm which engages with the worm-wheel, and at the end within the mast the bevel gear G, Fig 4—here in a vertical posi-tion—which engages with the bevel gears K K' running loose upon the vertical shaft E. Power is communicated to the crane by means of a homp rope, s, Fig. 5, of \( \frac{5}{4} \) inch diameter, running at a speed of 1800 feet

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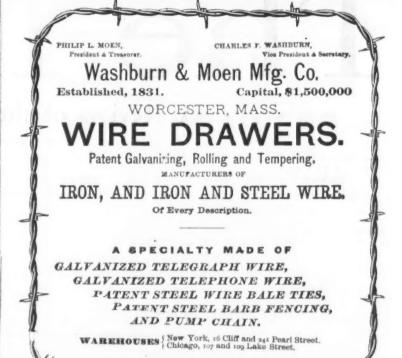
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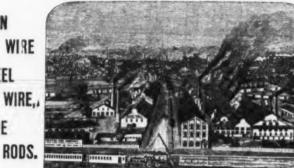
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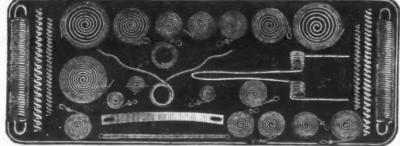
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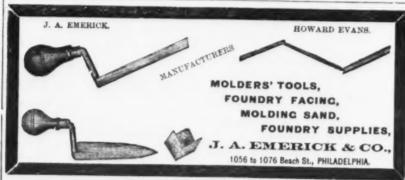
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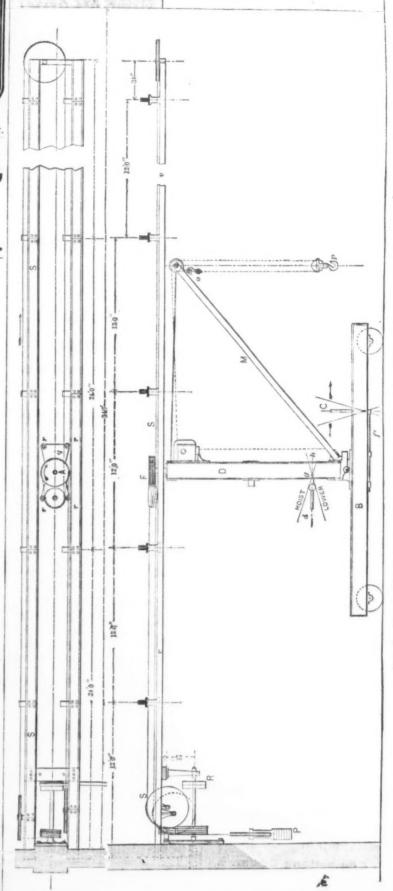
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shipper-rod f' and by forks to collars n n' and toggles t t', and brings one set of disk clutches into friction contact, as previously explained. To move the crane in the opposite direction the lever is moved the restriction that  $t_{n}$  is an interest of  $t_{n}$  and  $t_{n}$  in our description of the overhead traveling crane in  $t_{n}$  in  $t_{n}$  and  $t_{n}$  is an interest of  $t_{n}$  and  $t_{n}$  in  $t_{n}$  in



now to the other bevel gear, will, of course, revolve in the opposite direction. To stop the traverse motion the lever is returned to the vertical position; the collars n n' bring the toggles t to a neutral position, thus releasing the friction contact of the disk clutches and unlocking the bevel gear from the shaft; they now run loosely upon the latter. In order to lower or hoist, the lever

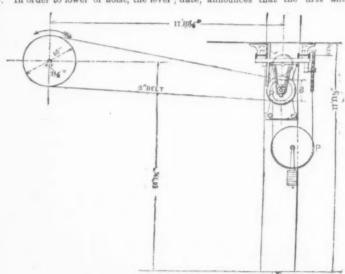


Fig. 6.-End View of Driving Gear on End of Shop, Showing Tightening Pulley, or Take-up

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d is moved in the direction in which the load is to move, viz., downward or upward. This produces the same results in the gearing of the vertical shaft as has just been explained in the horizontal shaft, only that the crab mechanism is now set thereby into motion, instead of the worm-gearing of the truck-

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tion of the wedge on a scale A table accompanying the instrument gives the cor-

Copying Processes.

Since the time when James Watt began the practice of keeping copies of all his letters and drawings by means of ordinary copying ink, the wants of the business community for means of copying letters and other papers have been steadily growing. The common copying press, with various arrangements for damping the paper, and ordinary copying ink, are the most common and really the most successful means. The so-called "hectograph," or gelatine pad, and the Zaccato process, which is a modified stencil plate, have probably been the most generally used when a great many copies stencil plate, have probably been the most generally used when a great many copies have been wanted. They give probably the best, and certainly the most numerous, copies of any of the systems which have been largely adopted. Unfortunately, both of them depend on aniline colors for the success of their operations, the very great coloring power of this dye enabling large numbers of copies to be readily taken by methods not possible with any other material. The business man often calls to his aid rial. The business man often calls to his aid lithography and photo-engraving for the re-production of circulars, but this entails considerable expense and much time. These processes are out of the question when only 50 or 100 copies are wanted immediately. 50 or 100 copies are wanted immediately. It seems as though mechanical talent might find a reward in the invention of a good and easily used apparatus for the production of numerous copies, either from type-writer manuscript or copy produced by the pen. In McKenzie's "Fivo Thousand Receipts," published probably 40 or 50 years ago, a system was spoken of which, combined with the type-writer or with some other process, might writer or with some other process, might possibly be made available. It was the use possibly be made available. It was the use of tinfoil in the place of paper. On a somewhat elastic background a sufficient indentation was produced so that a plaster of Paris copy could be taken. On being inked, this would yield 100 or 200 impressions very rapidly and with tolerable clearness. The atest aspirant of favor in this copying line is a combination of the gelatine and photois a combination of the gelatine and photo-graphic process, and partakes somewhat of the character of lithography. The writing is transferred to the gelatine in such a way as to leave the characters insoluble and capable of absorbing a greasy ink, while the remainder of the gelatine, kept wet by water, repels the ink. The process is capable of producing a great number of copies, but we fear needs considerable skill in manipulawe fear needs considerable skill in manipula-tion to produce even passable work.

Dangers of Railway Travel and Railway Service.

Some very interesting and also some very startling deductions, says the Railway Age, may be made from the table of railway accidents in the United States, reported by the Census Bureau for the year ending June 30, 1880. The total number of passengers carried during the year was 269,583,340, and the number of officers and employees of all kinds number of officers and employees of all kinds was 418,957. Although this includes general officers, clerks and others whose duties are not especially dangerous, we have not reduced the result as we might have done by subtracting them. Taking the official totals, we find the following averages of killed and injured through causes beyond their own control: Killed, passengers, 61, or 1 to every 4,419,400; employees, 260, or 1 to every 44,419,400; employees, 260, or 1 to every 411. Injured, passengers, 331, or 1 to every 417. The following were killed and injured through their own carelessness: Killed, passengers, 82, or 1 to every 3,287,injured through their own carelessness: Killed, passengers, 82, or 1 to every 3,287,601; employees, 663, or 1 to every 632. Injured, passengers, 213, or 1 to every 1,265,649; employees, 2613, or 1 to every 160. Aggregate, killed and injured: Passengers, 687, or 1 to every 392,407; employees, 4540, or 1 to every 92.

From this it will be seen that the dangers of railway travel to passengers, if they use ordinary care, are astonishingly small, only 1 passenger being killed by the fault of the railways to each 4,419,400 who traveled during the year, and only 1 injured to each 814,421. The number of casualties resulting from the carelessness of passon-

each 514,421. The number of casualties resulting from the carelessness of passengers was somewhat greater, but still very small compared with the vast number transported. With railway employees, however, the result is far less satisfactory. Out of every 1611 officers and men of all grades every foll officers and men of all grades I was killed, and out of every 417, I was injured during that year through causes beyond their own control. The ratio of the killed and injured through their own carelessness is far greater, while the aggregate casualties from all causes show the shocking average for the year of 1 killed or injured to every 92 employees! These figures seem almost incredible, and yet it is probable that they even fall short of the truth, as many minor casualties are doubtless not reported. If the number of accidents to train hands alone were given, it would show a still more terrible average. dessness is far greater, while the agg would show a still more terrible average. Certainly these figures call for greater care on the part of those operating our railways, and also for more perfect appliances by which this record of suffering and death may be largely diminished in future.

An Ingenious Comparison Photom-eter.—Mr. Robert Sabine, the well-known electrician, has devised an ingenious comparison photometer on the wedge principle, now employed by some astronomers to measnow employed by some astronomers to measure the intensity of starlight. The new instrument consists of a wedge of neutral-tinted glass, which is inserted in the track of a beam of light from the source to be measured, and serves to absorb or cut off a proportion of the light, which is determined by alterities the vedge until a cartain theke. portion of the light, which is determined by adjusting the wedge until a certain thickness of glass is interposed. The partially quenched ray is then reflected by a mirror upon a disk of opal glass, which it illuminates, and the observer compares the luminosity of this disk with that of a neighboring disk of opal glass which is illuminated by a standard oil lamp forming part of the apparatus. By moving the wedge in or out he makes the luminosities of the two disks practically the same, and when this is so reads off the position of the wedge on a scale. A table responding candle-power of the light

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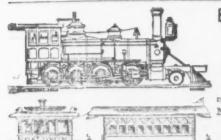
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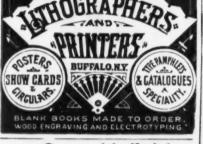
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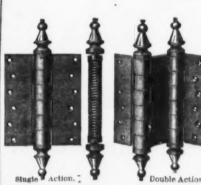
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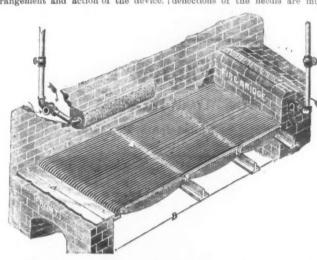
# NATIONAL HARDWARE & MALLEABLE IRON WORKS, of the

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the arrangement and action of the device. deflections of the needle are multiplied to

The Rich-Morrison Smoke-Preventing including that of the generator. To demonstrate the truth of this law, it is only neces-Furnace.

Among the numerous devices which have been placed upon the market within the past few years, all claiming to prevent the formation of smoke and to effect economy in the consumption of fuel, is that now being produced by the Rich-Morrison Perfect Combustion Company, of Philadelphia, Pa. The two engravings submitted in this connection will enable the reader to readily understand the extractional transfer of the needle are availabled to deflections of the needle are availabled to



The Rich-Morrison Smoke-Preventing Furnace. - Fig. 1. - Interior View of Furnace.

Fig. 1 represents the interior of the furnace, with a portion of the side wall broken away so as to show the pipe connection referred to below. It will be seen that the whole arrangement consists of cast-iron pipes, with small perforations, placed flush with the sides of the furnace under the boiler. A similar pipe may be placed across the bridge wall, in front, or wherever the construction of a furnace requires them to be placed to best advantage. These are connected with induction pipes through which hot air and superheated steam are forced, which, coming in contact with the unconsumed gases, proin contact with the unconsumed gases, pro-mote combustion. An enlarged sectional view of the induction pipe is given in Fig. 2, from which it will be seen that the air enters



Fig. 2.—Sectional View of Induction Pipe.

on both sides, as indicated by the arrows, being drawn in and carried along by the steam, which issues from a pipe in the center having an opening of ½ inch. The device is simple, can be easily attached, and requires no change of grate surface, bars, doors, &c. The manufacturers inform us that the Phila-delphia and Reading Coal and Iron Company have purchased the right to use these devices, and have placed them in several of their collieries, where they are reported as giving very satisfactory results.

SCIENTIFIC AND TECHNICAL.

Influence of Metals on the Oxidation of Oils.

Metals have in certain cases been found to exert a remarkable influence on the oxidation of oils. Quite recently M. Livache, of Paris, used in this relation finely divided metal, such as is obtained by precipitation, instead of metallic plates, and the effect was found to be greatly increased. He thus tried lead, copper and tin, and found lead to have the strongest action. If lead moistened in oil be exposed in air, and lead moistened in oil be exposed in air, an increase in weight is very soon observed, and this is greater the more siccative the oil. with linseed oil the increase of weight reaches a maximum in 36 hours, whereas, exposed alone to air, the oil would take a much longer time to reach this maximum. A solid and elastic product is obtained. With non-drying oils the increase of weight is much less, and takes much longer to be completed. The result in question, M. Livache points out, cannot be attributed to a simple division of the matter, allowing more active circulation of air, for the same experiment and arithment of the same experiments are the same experiments. The same experiments are the same experiments are the same experiments and the same experiments are the same experiments. The same experiments are the same experiments are the same experiments are the same experiments are the same experiments. division of the matter, allowing more active circulation of air, for the same experiment made with various other substances in fine division does not result in any like increase of weight; the effect here is merely like that in the case of a thin layer of oil exposed to air. The change in the other case must be attributed to a direct action of the metal. Operating with different oils, M. Livache found the increments of weight proportional, except in the case of cotton-seed oil, to those observed in the fatty acids of the oil exposed to air for several months. He suggests that industry may derive certain advantages from the facts observed. Thus a rapid method is indicated of distinguishing drying from non-drying oils. Further, the heating of oils might be advantageously replaced by a circulation, in contact with air and in the cold state, over iron

Fig. I represents the interior of the furnace, any desired extent by means of a beam of

in generating it by means of the movement of a coil of wire along a bar-magnet.

The electro-motive force of the current so produced depends upon the number of lines of magnetic force cut by the moving coil in a unit of time, so that this can be varied by varying the speed with which a given coil is moved, or, the speed remaining the same, by varying the number of coils. Professor Mayor amployed this latter method, his are Mayer employed this latter method, his ap-paratus consisting simply of an upright bar-magnet, over the end of which a loop of wire could be slipped, the distance which this could slide being limited by a stop. The movab'e coils consisted of the same lengths of copper wire, in which there were taken one, two or more loops, the resistance of each of these pieces being the same, so as to maintain that of the complete circuit constant. The coils were placed over the upper end of the magnet, and carried down until they rested upon the stop, the needle of the galvanometer brought to the zero of the scale, and then the coil pulled off the magnet with a quick motion. The deflection of the needle indicated a variation in the current in proportion to the number of loops of wire used, and when the resistance was varied, in proportion to the amount of this variation.

A better form of the apparatus is one in which the coil, instead of being moved by which the con, instead of being moved by hand, is drawn up quickly by a spring, when it is released by the pulling of a trigger. With this Professor Mayer is at present studying the development of magnetism in electro-magnets.

### LATEST LEGAL DECISIONS.

RIGHT OF VENDER TO GOODS SOLD ON CREDIT AND NOT DELIVERED BY RAILWAY COM-PANY.

Lumber was sold on credit and shipped by Lumber was sold on credit and shipped by rail to the purchaser on January 1, 1881. The freight not being paid, the lumber remained in the possession of the railroad company. The purchasers became insolvent, and on April 30, 1881, the agent of one of their creditors paid the freight, and N, who had been acting as the agent of the purchasers at the place where the lumber was sent, receipted for the lumber as such agent. The sheriff then levied an attachment in favor of the creditor on the lumber, and the yanders, claiming the right to ston the lumber, venders, claiming the right to stop the lumber because of the insolvency of the purchasers, being refused the property, sued the sheriff in replevin to recover it. In this case— Greve vs. Dunham—the Supreme Court of

tain advantages from the facts observed. Thus a rapid method is indicated of distinguishing drying from non-drying oils. Further, the heating of oils might be advantageously replaced by a circulation, in contact with air and in the cold state, over iron or fine plates having precipitated metallic lead on their surface. The oils so obtained would be always less colored, and would retain great fluidity, while the objectionable odors and the danger of fire which attend the present mode of treatment would be avoided.

Experimental Demonstration of Ohm's Law.

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An interesting experimental demonstration of the truth of Ohn's law was recently given by Prof. Alfred M. Mayer, of the Stevens Institute of Technology, before the Now York Electrical Society. This law, as well known, affirms that in any electrical circuit the current flowing varies directly as the electro-motive force and inversely as the electro-motive force and inversely as the failure of the eath of T was not caused by any expessure or negligering to the failure of the eath of T did not happen in consequence of exposure to obvious or unnecessary danger, and that the tinn of the truth of Ohn's law was recently given by Prof. Alfred M. Mayer, of the Stevens Institute of Technology, before the Now York Electrical Society. This law, as well known, affirms that in any electrical circuit the current flowing varies directly as the electro-motive force and inversely as the electro-motive force and R the resistance of the entire circuit, not happen in consequence of exposure to other trade.

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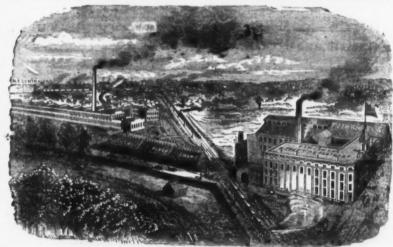
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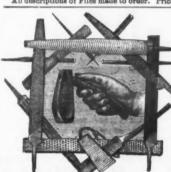


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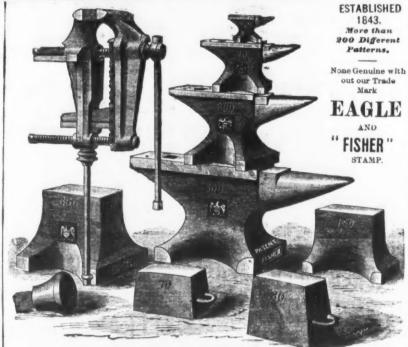
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to the risk, but from a new force or power governed than it is at present. The inventor the language of the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions too fine to enter into the understanding or contemplation of search and the policy by metaphysical distinctions to fine to enter into the understanding or contemplation of search and the policy by t standing or contemplation of parties engaged in the practical business of making a contract of insurance. We must assume that T read his policy and was acquainted with its language, and attached some practical meaning to it."

FIXTURES—TENANT FOR YEARS—REMOVAL OF FIXTURES AFTER TERM.

D. & Co. rented from B a lot on which there was a box and keg factory, for a term of three years, and, in addition to the rent, D. & Co. were to pay all the taxes and the insurance. It was provided in the lease that insurance. It was provided in the lease that upon any default to pay the rent, taxes or insurance, B might consider D. & Co. his tenants at will, and, after 30 days' notice, enter and repossess himself of the premises. The building contained machinery put in it by the former tenants, from whom D. & Co. purchased it on taking their lease, and they added other machinery. D. & Co. became bankrupt before the expiration of their term, and their assignees gave notice. their term, and their assignees gave notice that they would sever and remove the fix-tures. B then filed a bill in equity for an injunction in the United States Circuit Court to restrain the removal of the fixtures, and the machinery was delivered to B upon his giving a bond to deliver it up should his right to it be decided against him. Subsequently, under a decree of composition, D. & Co. were restored to their rights of property under the assignees, and they brought an action sgainst B-Darrah vs. Baird-for the conversion of the machinery, but they were defeated; they then carried the case to the Supreme Court of Pennsylvania, which also decided against them. Judge Mercer, in the opinion, said: "A tenant for years who erects fixtures for the benefit of his business may at any time during the term remove them from the demised premises; but this he cannot do after the end of the term unless he remains in possession and holds over, so as to create an implied renewal of the lease. If fixtures which the tenant might remove during his term be suffered to remain after its expiration, they become inseparable from the freehold: they cannot be recovered afterward by the tenant as his personal chattels. CORPORATION .- PRODUCING BOOKS IN COURT.

In a suit between third persons, the president and secretary of a corporation were subponed to appear as witnesses to produce certain books and papers of the company in court; they refused to bring the books and papers on the ground that where the corpopapers on the ground that where the corporation is not a party there is no power to issue such a subpena. In this case—Wertheimer vs. The Continental Railway and Trust Company—in the United States Circuit Court, Southern District of New werthermer vs. The Continental Railway and Trust Company—in the United States Circuit Court, Southern District of New York, Judge Wallace, in granting a motion to compel the production of the books and papers, said: "This proceeding is opposed upon the authority of several cases in the New York courts, which deny the right of a party te compel the officers of a corporation to produce its books in evidence in a cause to which it is not a party. Notwithstanding these decisions, however, it is believed to have been the common practice in this State to subpoena officers as witnesses to produce the books of their corporations in actions between third persons. In other States, so far as is known, the right to do so has never been controverted. Why should not the officers of a corporation be required to produce its books as evidence. The corporation can act only through its officers. The suggestion that the books are in the legal custody of the corporation, and not of its officers, may be theoretically correct. If technically true, it is not an objection to compelling the officers to produce them: for as Lord Ellan. it is not an objection to compelling the offi-cers to produce them; for, as Lord Ellen-borough said, in Avery vs. Long, I Compt. 17, 'Although a paper should be in the legal custody of one man, yet if a subpena as a witness to produce it is served on another who has the means to produce it, he is bound to do so.

OF DEBT.

A sued B for a debt, and the defense was A sucd B for a debt, and the defense was made that the debt was barred by the statute of limitations. The plaintiff replied that as the defendant had been put into bankruptcy the meaning of the statute had been sus-pended. He had not proved his debt in bankruptcy. The trial court decided in favor of the defendant, and the plaintiff carried the case—Doe vs. Erwin—to the Supreme Judicial has had an opportunity to obtain his discharge.

## METALLURGICAL NOTES.

New Method of Ore Reduction.

Mr. Levi D. York, of Portsmouth, Ohio, recently proposed a new method for the reduction of ores, a brief description of which may be of interest to our readers. The inventor proposes to abandon the usual method of feeding furnaces with fuel, and advocates the introduction of a mixture of gas and air at the tuyere level of the furnace. The gas to be employed may be generated by any of the present designs of gas producers (provided natural gas is not available), and is forced into the furnace through the tuyeres at any desired pressure, together with a suitable proportion of air. The mixture of gas and air may be heated before entering the and air may be heated before entering the furnace by passing through stoves designed for that purpose, thus insuring more perfect combustion near the point of admission. By the regulation of the volume of either gas or air admitted, any degree of heat may be obtained to suit the requirements of any special material operated upon. This method of feeding furnaces is, so the inventor claims, specially advantageous to the manufacture of pig iron, but at the same time can be applied in reducing any metals to the fluid. This brief outline of the history of methods. of pig iron, but at the same time can be applied in reducing any metals to the fluid state at a great reduction in the amount of fuel used and a considerable increase in production. The work of the furnace, moreduction. At this stage of the subject. I have the pleasure of presenting to you the

the method to the production of steel, but in regard to this point he advances no definite opinion, but claims that a ton of iron can be made with less than 500 pounds of coal, which is naturally a great reduction when compared with the amount used at the present time. In the event of natural gas being available, the cost of fuel would be still less. The superior quality of the iron turned out by this process is another point to which the inventor directs attention, stating, at the same time, that any of the present furnaces may be changed to work in this way at a very small cost. Mr. York, it is understood, is now making arrangements to erect a very small cost. Mr. York, it is understood, is now making arrangements to erect a suitable plant for the purpose of carrying out his process, and further developments will undoubtedly be awaited with interest.

#### Melting Iridium.

The following paper, by Mr. William L. Dudley, was read before the Mechanics' Institute not long ago. It gives the particulars of Holland's process for melting iridium, and a good deal of valuable information relating to iridium itself and the metals with which it is usually associated, together with their properties and the purposes for which they

re used in the arts: Iridium has been known to chemists for some years, although the public has had but little experience with it; even mining prospectors are, for the most part, unfamiliar with its appearance and properties. In the year 1803, Smithson Tennant, while investigating the metallic residue which remained when platinum ores were dissolved in aqua-regia, thought he had discovered a new regia, metal. metal. Descotils, Fourcroy and Vauquelin were at the same time examining similar residues, and they also came to the conclusion that a peculiar metal was present; but, however, in 1804, Tennant announced to the scientific world that he had proved the presence of two new metals in these platinum residues, to one of which he gave the name of "iridium," on account of the iridescence of some of its compounds; and to the other the name of "osmium" (derived from the the name of "osmium" (derived from the Greek), because of the peculiar odor which its volatile oxide possessed. Iridium is found in considerable quantities in the platinum in considerable quantities in the platinum ores, in the forms of platiniridium, which is an alloy of platinum and iridium, and osmiridium or iridosmine, which is an alloy of osmium and iridium. The platiniridium occurs in grains, and sometimes in smal cubes with rounded edges. The iridosmine is usually found in the form of flat, irregular grains, and occasionally in hexagonal prisms.

The geographical distribution of this metal.

The geographical distribution of this metal is quite wide; it is found in California, Oregon, Russia, East India, Borneo, South America, Canada and Australia, and in small quantities in France, Germany and Spain. As we find iridosmine, or the so-called native iridium, it is associated with numerous rare metals, viz., osmium, platinum, rhodium, ruthenium and palladium, and also with iron and copper. Iridium possesses a white luster resembling that of steel. In the cold it is quite brittle, but at a white heat it is somewhat malleable. It is a white heat it is somewhat malleable. It is one of the heaviest of metals, having a specific gravity of 22.38. When an alcoholic solution of the sulphate of iridium is exposed to sunlight, it deposits an impalpable black powder, which has the very peculiar property of setting fire to a piece of paper saturated with alcohol when brought into contact with the slightest trace of it. When heated in the air to a red heat the metal is oxidized, but on raising the temperature to about but on raising the temperature to about 1000° C. it parts with its oxygen; hence, at a high heat (above 1000° C.) it is not oxidized. It is insoluble in acids, but it is very slightly soluble in aqua regia when

heated for many hours.

Iridium is one of the most difficultly fusible of all metals, as will be seen from the following partially successful attempts to fuse it: In Gmelin's "Handbook of Chemistry," Vol. 6, we find the results of some of these experi-6, we find the results of some of these experiments. "Vauquelin fused it in very small quantity only, on charcoal ignited in a stream of oxygen, and obtained a somewhat ductile globule." This could not have been pure iridium if the globule was ductile, as he states. "Children fused it by his galvanic battery into a white, strongly lustrous, brittle, and still somewhat porous globule of specific gravity 18.68. This globule probably contained platinum (Berzelius). One gram of iridium, heated upon charcoal before of iridium, heated upon charcoal before Döbler's oxy-hydrogen blow-pipe, fuses into a bright globule, which, however, appears to Court of Massachusetts, by which the judgment was affirmed. The Chief Justice (Morton), in the opinion, said: "The bankrupt law of the United States does not probable a creditor whose debt has not been proved from bringing an action against the bankrupt; it only prevents him from prosecuting bis suit to final judgment until the bankrupt."

a bright globule, which, however, appears to absorb gas, since, on solidifying, it throws out excrescences, and cavities are formed in its interior." Platinum, which melts at a much lower temperature than iridium, was first fused by Dr. Hare, of Philadelphia, the inventor of the oxy-hydrogen blow-pipe. He succeeded in melting about 2 pounds (971) bis suit to final judgment until the bankrupt. succeeded in melting about 2 pounds (971 grams) at one time. He was also the first to stated, the iridium which these old chemists claimed to have melted must have been imclaimed to have melted must have been impure, containing metals of lower melting points, since one says he "obtained a somewhat ductile globule," and another found the specific gravity to be 18.68, when it is well known that pure iridium, in the cold, is not in the least ductile or malleable and its specific gravity is 22.38. Alloys of platinum, with a small percentage of iridium, can be comparatively easily melted by the oxy-bycomparatively easily melted by the oxy-hy-drogen blow-pipe. In a late determination, Violle estimates the melting point of pure iridium at 1950° C. and platinum at 1750° C. A few years ago MM. Deville and Debray succeeded in modifying Dr. Hare's blow-pipe to such an extent as to obtain more satisfactory results, and in 1870 they prepared bars for the International Metrical System Convention of 10 per cent. iridium and 90 per cent. platinum, and they successfully

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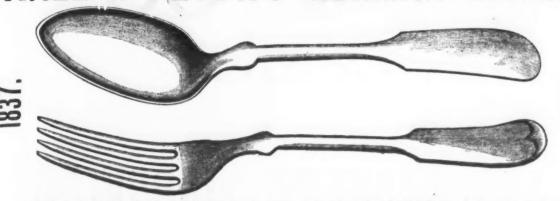
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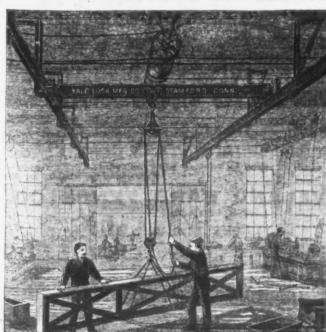
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results of the labors of Mr. John Holland, phosphorus is removed; but where hardness the well-known gold-pen manufacturer of our city. Mr. Holland being engaged in the manufacture of what are known as diamondpointed pens (the points being in fact iridium), it was quite natural that he should be impressed with the desirability of discovering some means of better preparing the metal to meet his own wants in his branch of manu-facture. About 18 years ago he commenced his experiments to that end, and never ceased his efforts, sparing neither time nor money in his determined pursuit of the object. At last his labors have been crowned with complete success. He placed a small quantity of the metal in a Hessian crucible, covery that the author of this paper became acquainted with it. For certain purposes for which it was proposed to use the metal, it was found necessary to remove the phosphorus which it contained, and this was the first problem that demanded attention. After various experiments, it was found that lime was best adapted to the purpose. The metal, after being melted and cast into suitable shape, is embedded in lime contained in a Hessian crucible, and subjected to a very high heat. This process is repeated several times, each time allowing the metal to re-main in the furnace longer than before, when, after four or five such operations, the phosphorus is practically all removed, having combined with the lime. For the want of a better name, and since the metal is rendered much tougher, we have termed this the an-nealing or dephosphorizing process. The removal of the phosphorus renders the metal slightly porous, but it is as refractory as the

Having our time entirely occupied in ex-perimenting with an aim toward practical results, we were unable to do much scientific results, we were unable to do much scientific work; but we are indebted to Prof. F. W. Clarke, of the University of Cincinnati, for assistance in this line. Professor Clarke has undertaken an analysis of the fused metal, and, although his work is unfinished, he states that it contains about 7½ per cent. of phosphorus.\* These analyses are accompanied by peculiar difficulties, since phosphorus is a new element for consideration in the analysis of the platinum metals. This in the analysis of the platinum metals. This offers an interesting subject for research, which at some future time will be pursued. On casting, we sometimes find the metal slightly porous. The polished surface, to the naked eye, may look perfectly homogeneous, but under the magnifying glass minute holes may be seen. In order to obtain the iridium in a convenient form for making nen points, the molten metal is making pen points, the molten metal is poured upon an iron plate, when the work-man immediately strikes it with a heavy iron, thereby flattening it out into a slab of about 1-32d inch in thickness. This slab is broken into small pieces, which are then broken into small pieces, which are then ground into the proper shape. The grinding is accomplished as follows: A copper wheel, technically called a "lap," about 12 inches in diameter and ½ inch in thickness, revolving at about 3000 revolutions per minute, is covered with fine emery or corundum mixed with oil. The emery embods itself into the copper, forming a rough and sharp surface. When the object to be ground is too small to hold in the hand, it is soldered on a piece of brass, which, after the grinding, is dissolved in nitric acid, leaving the iridium free. One ounce of iridium yields from 5000 to 10,000 pen points. The iridium from 5000 to 10,000 pen points. The iridium melted by this process is compact and crys-talline; it is harder than the natural metal. Its tensile strength has not been determined as yet. The natural grains of iridosmine are sometimes laminated in structure, and are liable to split in the direction of the lamination. The operation of sawing the metal is accomplished by means of a copper disk making about 5000 revolutions per minute, assisted by emery and water. When the metal is ground to a smooth surface by means of emery on a copper wheel, as described, it acquires a good polish, which may be increased by using "crocus powder" afterward on a similar wheel.

Iridium which has been melted by Mr. are sometimes laminated in structure, and

terward on a similar wheel.

Iridium which has been melted by Mr.

Holland's process is nearly as hard as the ruby, which is next in hardness to the diamond. It cuts glass readily; the best files are ruined by attempting to file it. It has about the color of steel. It is not attacked by soile and does not termine. tacked by acids and does not tarnish. The best steel tools fail to make any impression upon it. A metal with this wonderful com-bination of valuable properties will un-doubtedly find many uses to which it can be doubtedly find many uses to which it can be applied with great advantage, and, although we do not propose to mention all its applications, yet it may be of interest to state the results of our experiments with it, as applied to the elsetric light. Our first experiments were with the incandescent lamp, substituting iridium for carbon, and using it in the open air. So far as the durability of the metal was concerned, the result seemed favorable; but it required such a large amount of electricity to accomplish the result as probably to render this method of lighting somewhat expensive. A short time result as probably to render this method of lighting somewhat expensive. A short time ago Mr. W. M. Thomas, of this city, called on Mr. Holland, requesting a piece of iridium to be used in connection with the arc light. Mr. Holland had a small piece prepared, which was substituted for the negative carbon of the lamp. The first experiment was tried for one-half hour without any apparent effect on the metal. Since then more complete arrangements have been made, and the lamp containing the same piece of iridium has been in operation for over 70 hours has been in operation for over 70 hours without any appreciable loss of metal. The amount of electricity required to maintain it seems to be much less than for the ordinary amp. The point of light is always in the same position, and, consequently, can be used in a reflector without the additional clockwork which is employed to accomplish this result with the ordinary arc light. The light can be made very steady, since the lower carbon, which burns and crumbles in the discount of the world in the state of the stat away, is dispensed with. When the metal is

and non-corrosibility are required, the phosphorus does not offer any inconvenience.

The following note on the paper is by Mr.

R. B. Warder: R. B. Warder:
"Professor Dudley has shown that the
phosphide of iridium is harder and more fusible than the native metal. It is probably more
brittle. These facts remind us of the propbettan the native metal. It is probably more brittle. These facts remind us of the prop-erties imparted to iron by the presence of phosphorus, carbon and other non-metals. The physical properties of alloys and the effect of small additions of non-metals are enect of small additions of non-metals are subjects of the greatest importance, whether considered in their industrial or their scien-tific aspect. We need not look further than the discussion on steel rails by Dr. C. B. Dudley and others (Journal Franklin Instiand after raising it to a high heat, he quickly added a stick of phosphorus, when, greatly to his delight, as soon as the fumes cleared away he saw the liquid mass of metal in the bottom. It was at this stage of the disare still in their infancy, even in regard to iron. The 'dephosphorizing process' for the fused iridium bears a striking analogy to the use of a 'basic' lining in the Bessemer converter for the removal of phosphorus; in the latter case, however, the steel is melted, and the ingots are consequently homogeneous, while the solid bars of iridium become porous when the phosphorous is removed by heating with lime. Professor Dudley states that fused iridium has lately been used for the points of ruling and drawing pens, styles, contact noints for telegraph ing pens, styles, contact points for telegraph keys, and to replace agate in the bearings of analytical balances; it may soon be used also in the place of watch jewels and for bearings of the magnetic compass."

The statements in regard to the weight of The statements in regard to the weight of iridium are somewhat remarkable. Its specific gravity, given by some of the best works on the subject, is placed at only 21.15, being somewhat less than platinum, which is given as 21.50. The alloys of iridium appear to have long been known to the chemist, and many of them have been studied and are said to possess many interesting and valuable. many of them have been studied and are said to possess many interesting and valuable characteristics. It combines with gold, copper, lead, mercury, platinum. silver, tin and zinc; yet, aside from the scanty mention made by Mr. Dudley, very little is known in regard to these alloys. Platinum alloyed with iridium is hardened and stiffened, and the fusing point is considerably raised. Silver alloyed with iridium has a beautiful silver-white color, even when containing a small percentage, and has great elasticity. It engraves as easily as sterling silver, and It engraves as easily as sterling silver, and it is said a considerable reduction in the weight of silverware might be made by the use of this alloy, even though the strength was increased. An alloy with copper has been made and used for box metal and journal bearings. In regard to its performance we know little, but it is spoken of as having some reculiar proporties. having some peculiar properties

Fuel Consumption by Swedish Blast

Furnaces. An interesting communication by Dr. Tamm concerning the consumption of char-coal by Swedish blast furnaces was recently published in the Jern Kontorets Annaler. Dr. Tamm considered 28 furnace, and the averages of his statements are about as follows. Hight to tunnel head of fort, blight Dr. Tamm considered 25 furnace, and the averages of his statements are about as follows: Hight to tunnel head, 46 feet; hight to bosh, 14.3 feet; diameter of top, 5.4 feet; diameter of bosh, 8.7 feet; diameter of hearth, 4.6 feet; cubic contents, 2260.32 cubic feet; pressure of blast, 2.13 inches of mercury; temperature of blast, 210 C.; daily consumption of charcoal about 2123 bushels; percentage of oxygen in ore, on the basis of oxygen in pure peroxide of iron at 100, 93 44; percentage of carbonic acid in charge, 3.97; yield of iron in charge, 46.50 per cent; weekly production of pigiron, 90 tons; 2200 pounds of charcoal bore 4774 pounds of burden. The carbon carried into the furnace by the fuel, ore and limestone, per 2200 pounds of pigiron produced, was as follows: 1641 pounds of pure carbon by the charcoal, 43½ pounds of carbon distilled with the oxygen, by the charcoal, and 53 pounds of carbon by the carbonic acid in the charge. The oxygen entering the gases amounted to 88 pounds by the charcoal 4852 6 nounds by carbon by the carbonic acid in the charge. The oxygen entering the gases amounted to 88 pounds by the charcoal, 853.6 pounds by the ore reduced, and 147 pounds by the carbonic acid in the charge—a total of 1082 pounds to 2200 pounds of pig. According to the analysis, the escaping gases held 11.9 per cent. of volume of carbonic acid and 25.9 per cent. of carbonic oxide, and by computation on the basis that 26.96 volumes of oxygen are carried into the furnace with 100 volumes of nitrogen, the escaping gases contain 57 volumes of nitrogen and 5.2 volcontain 57 volumes of nitrogen and 5.2 volumes of hydrocarbons and hydrogen. The ratio of carbonic acid to carbonic oxide, by weight, in the gases was 0.74. Assuming that 2200 pounds of pig carry off 80 pounds of carbon, then 1344.2 pounds of carbon are burned to carbonic oxide before the tuveres, and 200 pounds, or about 13 per cent. of the carbon, are consumed for the reduction of ore

Industrial Schools in Pennsylvania .-Mr. M. C. Henninger, of Lehigh County, Pa., recently introduced in the Pennsylvania Senate a bill to establish iron industrial schools in the eastern and western ends of the State. The bill, which was defeated at the last session, divides the State into two districts, and authorizes the Governor to appoint 10 commissioners, who shall purchase two tracts of land and proceed to erect build two tracts of land and proceed to erect bindings. The object of the schools is to teach the art, science and business of the manufacture of articles that may be made of iron and steel. Each is to be managed by a board of 12 trustees, appointed by and with the advice and consent of the Senate for six years, who shall for the school of the senate for six years, who shall fix the salaries and number of the who shall have the salarles and number of the faculty, the rates of tuition, and "modify the general course of instruction" as circumstances require. The bill includes an appropriation of \$100,000 to each district as a preliminary basis of operations.

Indian Copper Mines .- From time immemorial the use of copper for cooking vessels has prevailed in India, the copper itself having been mined by the natives. The demand for it is so great that the value of the amount imported yearly into the country lower carbon, which burns and crumbles away, is dispensed with. When the metal is exceeds a million sterling. The mines in the country itself have been allowed to lie idle. Now, however, an attempt is to be made to Clarke, gave 7.32 per cent. and 7.74 per cent. Mr. O. T. Joslin found 7.38 per cent of phosphorus in the same sample. Osmium was found in traces only in the fused iridium.

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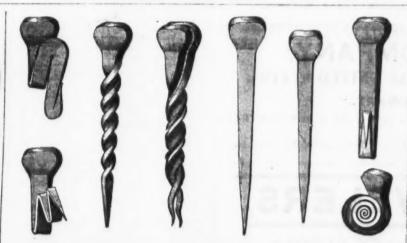


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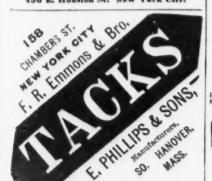
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#### INDUSTRIAL ITEMS.

#### MAINE.

The Goss Iron Works, at Bath, are being pushed along as fast as the season and weather will permit. The boiler is in position and the 60-horse-power engine is being set up. A set of boiler rolls weighing 18,000 pounds, a planer weighing 12,000 pounds for smoothing the edge of boiler plates, a surface planer, a punch and one or two other tools are in position, and the others are in process of construction. A steam hammer weighing 4100 pounds, independent of the die, and calculated to strike a blow of 25 is going into position on its foundation olid pilework. Plans for the shafting of solid pilework. and all the other appurtenances are also about completed.

#### VERMONT.

It is said that a stock company is soon to be formed who propose erecting a large rolling mill just east of Winooski.

#### MASSACHUSETTS.

The Norway Iron Works, Boston, are successfully using petroleum in their puddling and heating furnaces.

The Tremont Nail Co., at West Wareham, are repairing their tack factory, which has long been idle, and are increasing facilities for the manufacture of tacks. About a

in Fall River, employs 25 men. Its capacity is about 15 ranges a day, and the consumption of iron is about 1000 tons per annum. The pig iron is brought from New York and is mainly from the mines in the Adironfind a ready sale.

The Lanesboro' furnaces are rebuilt and ready to go into operation. -Boston Commercial Bulletin.

to the Farist & Windsor Co., are now running their crucible melting fires, and have three trains of rolls, one 8 inch, one 12 inch and one 16 inch. They have all the orders they can fill. Their specialties are cutlery, decarbonized, spindle, bicycle, tire, octagon and sheet steel.

The Prints of the Co., successors are needed.

Anna Furnace, belonging to Brown, Bonnell & Co., made 122 tons of iron in 24 hours last week. The next largest amount ever made was 117 tons. The furnace is 74½ by 16.

Hall & Sons' Hubbard Mill is idle—last orders.

The Brittin & Ellin Cutlery Co., of Bridge-port, have been reorganized under a new name, the Silver Plate Cutlery Co. The company are located at the Sharp's Rifle Works, occupying their forge and cartridge inspection buildings.

At the annual meeting of the stockholders of the Billings & Spencer Co., the old board of directors were chosen. The business for the past year was the largest in the history of the company.

It is rumored that negotiations are pending between the Esty Sewing Machine Co. and the Victor Sewing Machine Co, at Middleton, for the purchase and occupancy of the latter's property as soon as vacated.

The Corrugated Metal Co., Berlin, during the past year built nearly 100 spans of bridge, including 11 spans of railroad bridge, all but two of which were double-track. Owing to their rapidly increasing business in this line, the stockholders concluded to in-

At Hartford, Messrs. C. F. McMurray and J. M. Stoughton, formerly of the Hartford Engineering Co., have formed a copartnership under the firm name of McMurray & Stoughton, for the manufacture of the Medart patent wrought-iron pulley, together with machine-shop equipments, patterns, &c.

In addition to closing their nail department, in accordance with the recent decision of the Western Nail Association, the Etna Iron Works, Limited, of Newcastle, have shut

The furnace of the Pottstown Iron Co., for the week ending February 25, surpassed all ther additions to their plant, and are increasing their working force. the country in the amount of iron turned out. The quantity made was 472½ tons of pig iron and 2½ tons of castings, being a total of 475

The statement that the Allentown Iron Works were about to blow out and discon-Works were about to blow out and discontinue operations at three of their furnaces is without foundation. The furnaces are being blown out, but only for the purpose of making repairs, which are needed very badly. As soon as the furnaces are put in good order they will be blown in again, unless the situation in iron should change for the worse.

There were 4191/2 tons of iron manufactured at the Warwick Furnace last week.

The iron works of Potts Brothers, Limited, at Pottstown, which have been lying idle for a month, will resume operations this week.

The workmen in many of the mills here are opposed to the new Adams direct process, because it may possess some laborsaving features. The process will not hurt the puddler's business, however, so the inventor claims. The gentlemen who have brought out the Adams process have received a patent on a dephosphorizing process. By it they claim to treat the raw ore and perform the work which by other process. By it they claim to treat the raw ore and perform the work which by other process.

Charles S. McGill, Edward Maxwell and James W. Brown, and were engaged in manufacturing railroad axles and heavy forgings, besides a number of specialties. In the works were three furnaces, three hammers, two lathes and other machinery, including a very valuable set of shears. About 150 men were employed. The buildings were expected about it years were expected. ings were erected about six years ago, and were considered safe, except for the presence of a small shed on Spruce Alley, between the works and the storeroom, which was used for storing coal, sand, &c. and was covered with a tar roof. It is surmised that sparks from the blacksmith's department set fire to some dry boards in it, and the shed caught fire from them. The tar roof carried the flames to the roof of the works. The loss is estimated to be from \$50,000 to \$75,000. The insurance is about \$50,000, divided between some 30 companies. The firm may rebuild on the old site, or may remove to Chartiers, where their new rolling mill is situated.

Anderson, Du Puy & Co., succeeding Anderson & Co., have completed their new works at Chartiers and are now in successful operation. The Anderson of the firm is Mr. R. J. Anderson, well known in steel circles, and Mr. Du Puy is a son-in-law of Dr. David Hostetter. The new firm will turn out all the kinds of steel for which the old Pittsburgh Steel Works were justly famous, and announce that they have secured the services long been idle, and are increased long to the manufacture of tacks. About a old works—an important consultation to those now in the factory, and en additional building is also being erected to the diditional building in the diditional building is also being erected to the didition of the diditional building is also being erected to the didi

A large proportion of the Brown, Bonnell The pig iron is brought from New York and is mainly from the mines in the Adirondacks. The designs for the ranges are made in the shop, the patterns in Taunton, and they manufacture several varieties which find a ready sale.

A large proportion of the Brown, Bonnell & Co. works were started up this week, under the direction of Receiver Fayette Brown. Nos. 1 and 2 puddle mills, the nail mill, naif factory, sheet mill, bar mill, 8-inch mill, 12-inch mill and hoop mill were put on full turn, and the others will be put in operation as soon as possible.

An increase of the capital stock of the Steel Bow Socket Co., Cleveland, to \$15,000 has been filed.

The new Youngstown Steel Works have commenced operations.

Arnold Furnace has blown in.

The new hot blasts at Belfont Furnace are being dried out. The furnace will probably not blow in for some time.

The Franklin Iron Co., of New York, have been so well pleased with the blowing engine they purchased of the Cuyahoga Works, Cleveland, last fall, that they have ordered another of the same kind. The steam cylinder is 40 inches bore, 54 inches stroke; the air cylinder 84 inches bore, 54 inches stroke.

Ironton Furnace, of the New York and Ohio Iron and Steel Co., is making 245 tons per week and is working well.

Etna Furnace blew in with some little trouble, but is now working very well.

### ILLINOIS.

Owing to their rapidly increasing business in this line, the stockholders concluded to increase the capital stock to \$1,000,000, and change the name of the corporation to the Berlin Iron Bridge Co. They have more than doubled their plant in the past six months.

At Hartford, Messrs. C. F. McMurray and J. M. Stoughton, formerly of the Hartford power for the works will be supplied by a 40-horse-power Atlas engine and a 60-horse-power boiler. The boiler is supplied with improved steam heaters and generators and water purifiers. The steam outfit of these works is one of the most complete in the Northwest; 150 to 200 men will be employed, and the company report enough orders on hand to keep them busy for the next three months.—Chicago Industrial World.

The Standard Brass Mfg. Co. have recently Iron Works, Limited, of Newcastle, have shut down their rolling mill. Dullness of trade is all kinds of plumbers' materials. They have iven as the cause.

Duncannon Furnace will probably blow in ate this month.

The trace of the Private Inc.

Duncannon Furnace will probably blow in a large works containing 40 lathes, several furnaces and about \$12,000 worth of the latest improved machinery. They will be in operation by March 15.

The Chicago Forging Co. are making furing their working force.

The Union Foundry and Pullman Car Wheel Works are filling a 5000-ton order of car-wheels and castings for the Pullman Palace Car Co.

Shumway, Burgess & Co. have closed an order for 225 tons of bolts, to be used in the harbor improvement in Chicago.

The St. Louis Wire Mill Co. contemplate the crection of a new warehouse, which, when completed, will admit of part of their present warehouse being converted into a galvanizing department.

The Duggan-Parker Hardware Mfg. Co. The Duggan-Parker Hardware Mfg. Co. pre pushing things with regard to rebuilding their new factory. Within four days after they began the erection of their new works they had a twe-story building, 90 feet in depth and 70 feet in width, completed and filled with machinery. They are now running their molding room, fizishing and machine shops, and were to have all their buildings completed by last Saturday.

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The Vulcan Forge of Long & Co. was at present, and the machinery is being burned to the ground last Sunday morning. The works were owned by Joseph D. Long, possible. The Missouri Car and Foundry Co. will

# The Iron Age

#### Metallurgical Review.

New York, Thursday, March 8, 1883.

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burgh Hardware and Metal Prices.

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In another place we publish the complete text of the Conference Committee Report as it passed the House and Senate on Saturday last. As compared with the tariff bill in force at the present time, the important changes in the metal schedule are as follows:

The Tariff Bill so Far as it Affects

Iron and Steel.

Pig iron and spiegeleisen are reduced from \$7 to \$6.72 per ton, iron kentledge is increased from 20 per cent, ad valorem to \$6.72 per ton, wrought and scrap iron are reduced from \$8 to \$6.72 per ton, while scrap steel, which does not appear in the previous tariff at all, is increased from 30 per cent. ad valorem, which would be in the neighborhood of \$4 a ton, to \$6.72. Cast scrap is increased from \$6 to \$6.72 a ton.

The provision for crop ends of rails, ingot butts, filings, turnings and borings, which appears in the Tariff Commission Report, has been left out entirely, but these will probably be dutiable at 45 per cent., an increase of 15 per cent. on the steel and of 10 per cent. on the iron. Heavy iron rails remain where they were, .7 cent a pound, but light iron rails, or those weighing 25 pounds and less, have been advanced from .7 to .9 cent. Heavy steel rails are reduced from \$28 to \$17 per ton, while light steel rails are reduced from 11/4 cents a pound to .9 cent.

The classification on bar iron is changed mewhat, so that it is difficult to tell just what the reductions are. Certain sizes have been changed from 1 cent a pound to .8 cent, and others from 11/2 cents to 1 and 1.1 cent A provision, however, is inserted that all iron bars, blooms, billets or shapes, or sizes made with charcoal as a fuel, shall pay \$22 per ton. This was evidently designed as a benefit to the charcoal-iron manufacturers, but its effect will probably be to reduce on some of the sizes the duties that would have been paid on charcoal iron without this proviso. For example square iron less than ¾ inch square pays while under this proviso it is possible that it may be ruled that charcoal squares of this size shall pay only \$22 a ton. Under the 35 per cent. ad valorem proviso under the bariron clause, some iron made with charcoal as a fuel would pay 2 cents a pound, whereas under the charcoal proviso it would be questionable if it had to pay more than

\$22. The duty on round iron in coils is changed mewhat, and there also seem to be two rates of duty. Round iron in coils less than 7-16ths inch in diameter is made dutiable in one place at 1.2 cents per pound, while in another, iron, rivet, screw, nail and fence wire rods, round, in coils, not lighter than No. 5 wire gauge, are made dutiable at .6 cent per pound. The old law made round iron in coils 3-16ths inch in diameter dutiable at the same rate as iron wire. Bars or shapes of rolled iron n. o. p. are dutiable at 1.2 cents per pound. The present rate is 1 1/4 cents.

The classification of boiler and other plate iron has been changed; skelp iron has been added to it, and made dutiable at 11/4 cents per pound. This is practically the old rate. Sheet iron not thinner than No. 20 has been reduced from 11/4 to 1.1 cents; from No. 20 to No. 25, from 1 1/2 to 1.2 cents; from No. 25 to No. 29, from 134 to 11/2 cents, while all iron thinner than No. 29 has been put at 30 per cent. ad valorem, instead of at 134 cents, taggers iron remaining at 30 per cent. ad valorem, where it was previously.

Galvanized iron has been put at 34 cent per pound additional to the duties imposed on sheet or plate iron. The old rate was 21/2 cents a pound on all. This, it will be noted, is a reduction on all sizes, and a considerable reduction on some

Planished iron is reduced from 3 to 23/ ents, but a clause has been introduced which provides that all pickled and coldrolled iron shall pay 1/2 cent per pound more duty than the corresponding gauges of common black sheet iron. This is an increase relatively, but not actually.

Tin plates have been reduced from I. cents to I cent; corrugated or crimped sheet iron, which was not mentioned in the old bill at all, and which in some cases paid the sheet-iron duty and in others 35 per cent ad valorem, has been mentioned in the bill at 1.4 cents per pound.

Hoop iron, thinner than No. 10 wire gauge, has been reduced 1/4 cent a pound ; from that to No. 20 has been reduced from 1.5 to 1.2 cents; thinner than No. 20 has been reduced from 13/4 to 1.4 cents per pound, but a proviso has been inserted that all articles not specially enumerated or provided for, whether wholly or partly manufactured, made from sheet, plate or hoop iron, shall pay 1/4 cent per pound more duty than that imposed on the iron from which they are made. This takes out of discussion the rate of duty on hoops cut to lengths, and splayed cotton ties are allowed to remain where they have been under the Treasury rulings-that is, at 35 per cent. ad valorem.

Cast-iron pipe has been reduced 1/2 cent a bound, while all castings of iron not specially enumerated have been changed from 30 per cent. ad valorem to 11/4 cents per

Cast-iron vessels, stove plates and other astings are reduced from 11/2 to 11/4 cents. Cut nails are reduced from 11/2 to 11/4

Cut tacks remain as they were. Malleable castings are reduced from 21/2

On spikes, nuts, washers, &c., there is very little change.

Anvils are reduced from 21/2 to 2 cents. Forgings for mills, ships, vessels and locomotives remain as they were, 2 cents per

Rivets, bolts and hinges are unchanged. Blacksmiths' sledges, iron and steel axles. &c., are also unchanged, at 2 % cents a pound.

The bill provides that axle bars, blanks and forgings for axles shall pay the same rate of duty as axles. This removes a subject of dispute. Forgings of iron and steel, which were

not provided for by name in the old bill, are put at 21/2 cents in the new bill, while forged iron not otherwise provided for (which is virtually hammered iron), which under the old law was 114, under the new law is 21/2 cents a pound.

Horseshoe nails are reduced from 5 to 4 cents per pound, while hob nails, wire nails and other wrought-iron and steel nails n. e. p. are put up from various rates to 4 cents

The classification of chains has been changed considerably and very much reduced-just the difference can only be seen by an inspection of the two bills.

Circular saws are placed at 30 per cent. ad valorem, while the classification of hand, back and other saws has been entirely changed from a compound duty to an ad valorem of 40 per cent. Cross-cut saws have been reduced from 10 to 8 cents a linear foot, and mill, pit and drag saws not over 9 inches wide from 121/2 to 10 cents, and over ginches wide from 20 to 15 cents.

The classification of files has been materially changed. The old classification was inches." In the new schedule there are four classifications: "Four inches and under," "over 4 inches and under 9," "9 and under 11," and "14 and over." The change results in a large increase in duty.

The most important changes, however, as well as the most serious ones (outside, perhaps, of the hoop-iron clause), are those in connection with steel. All steel in ingots, blooms, billets, bars, bands, hoops, and, in fact, almost all kinds of manfactured steel valued at 4 cents a pound or less, is put at 45 per cent. ad valorem. Above 4 and not above 7, 2 cents; above 7 and not above 10, 2 1/2 cents; valued above 10, 3 1/2 cents. On crucible steel in forms outside of ingots, blooms and similar articles, this is not a serious reduction, but on Bessemer steel and open-hearth steel, especially the latter, the reduction is a serious blow. Open-hearth steel in the form of sheets and plates, bars, rods, &c., paid 21/4 cents a pound under the old law; under the new classification, it will in no case pay above 2 cents, and in most cases 45 per cent. ad valorem, which will be very low rate of duty. To add to the burden under which the manufacturers will rest, wire rods are put at .6 cent per pound.

Locomotive tires are reduced from 3 to 21/2 cents a pound, but steel wheels and steeltire wheels, car and other railway tires whether wholly or partially manufactured, and the steel blooms or blanks for the same, are put at 2 cents per pound.

Iron and steel structural material is put at 14 cents per pound. This is I cent a pound ess than under the old law was paid on steel structural material, and about the same rate as was paid on iron structural material.

A new classification has been made on erews, which, on most sizes, is a considerable reduction, but on those 1/2 inch and less in length it is an increase of I cent.

There have been so many changes on wire that it will be impossible to show the difference in the rates except by a careful inspec tion of the two clauses.

Steel not specially enumerated has advanced from 30 to 45 per cent. ad valorem. All manufactures of steel remain where they were, at 45 per cent., while manufactures of iron not otherwise provided for have been

increased from 35 to 45 per cent.

The "rust clause," so called, or the allowance for damage in consequence of rust, ap-plies now to all iron and steel, Russia being

ference in the iron and steel schedule be-tween the two bills. On the whole, we imagine that the result is a material reduction of rates. Where there has been an increase, or where the old rates are retained, it is on articles of comparatively small importance; but on those articles of which the largest amount is imported into the United States, as pig iron, wrought scrap, steel rails, tin plates, bar iron, sheet and plate iron, &c., there has been a material reduction in duties. We do not imagine, however, that there will be much falling off in revenue because of these reductions, as probably there will be larger imports, and, though the rates are somewhat lower, the total of duties

A correspondent of one of the daily February 11, gives with a great flourish of trumpets accounts of Deprez's experiments Delano, of Columbus, are extremely indigin transmitting power by electricity. Deprez nant at the action of the Conference Comclaimed that he had transmitted over a wire mittee, and are loud in their threats of 35 miles long, rather more than 50 per cent. of an inch in diameter. French scientists hearted protectionists of New England. The threw great doubt on this, and experiments iron and steel workers are hotly denouncing have been repeated before a French com- the bill, claiming that those items put into mittee. The experiments were arranged to the bill to correct the Treasury decisions

transmit 6 horse-power over a 12-mile line of wire, and 10 horse-power over 22 miles. attained were, as the inventor claims, 50 per cent. of the power which was generated. The power was measured on a Prony brake. In closing his account the correspondent asks, with an abundance of rhetorical figures, the scientific world will be prone to look upon this 50 per cent. waste as rather a costly power. Water-wheels, dynamos and dams cost money, and the interest on the investment is likely to be heavy.

#### The Passage of the Tariff Bill.

The Morrill tariff of 1861, after an existence of almost twenty-two years, has ceased be, and the Morrill tariff of 1883 has taken its place. It is a distinction that has very rarely been given to one man in the history of tariff legislation to carry through Congress two bills, separated by so many years, both constituting a complete revision and change of the tariff. As to the relative satisfaction with which Mr. Morrill will, in days to come, regard these two bills, we believe that he will take more credit to himself for the tariff of 1861 than for that of 1883, and we shall be disappointed if his course in regard to this bill will not come to be regarded as a surrender of the protective principle, after a lifelong devotion to it, in the same way that Mr. Clay's action on the Compromise Tariff is now regarded by all protectionists. The report of the Conference Committee

of the House and Senate on the tariff and tax bill passed the House on Saturday afterncon by a vote of 152 to 115, a majority of 37 in its favor, it having previously passed the Senate by a majority of one. A number of causes conspired to bring about this result. The bill, as is well known, contained not only a complete revision of the tariff. but clauses that largely reduced the internal revenue taxes. As it was probable that, unless this bill passed, all attempts at a reduction of revenue by the present Congress would fail, those interested in its reduction were very urgent that the bill should be passed The wires were kept busy on Saturday with telegrams from those connected with the banking interests, beseeching Representatives to pass the bill. The taxes on tobacco are also quite largely reduced, and though the States most largely interested in the growth of tobacco voted against the bill, the Representatives from the sections where tobacco is manufactured voted quite generally for the bill. It is also true that most of the manufacturing industries of the country are fairly well taken care of. Glass, crockery, silk, woolen, cotton—all of the schedules pertaining to these interests are at least acceptable to the interests affected. It was believed by these parties that if the conference report was not passed the Senate bill, which was very much worse, would be passed under a suspension of the rules, or, if this was not done, that they could not expect from the next Congress as good rates of duties as are given them in the present bill. These circumstances, in connection with the demand for its passage by the business interests that are not directly interested in importing or manufacturing, combined to pass the bill against the better judgment of a large number of Representatives, several of whom previous to voting declared their dissatisfaction with it, and that they only voted for it in deference to one or more of the reasons above named. In addition to this, very many who are regarded as revenue reformers voted for the bill as a step in the direction of "revenue reform," by which they mean reduction of duties, in hopes that, with this beginning, reduction can be made much lower by the next Congress. Indeed. plies now to all iron and steel, husself, no longer excepted.

The McKinley clause does not appear in the bill, unless a clause in the first part of the bill, which provides that on all articles manufactured from two or more materials, the duty shall be assessed at the highest rates at which the component material of chief value may be chargeable, may be taken to be the McKinley clause in effect. The component material of chief and of which no one seems satisfied and of which no one seems satisfied and of which no one seems satisfied and of which no one will be proud. The countries was 10,491,650 to tons. This is a wonderful increase in five vers, amounting, as it does, to nearly 6,000,000 tons, or an average of over 1,000,000 to sa year. Other changes have been made and of which no one will be proud. The countries was 10,491,650 to tons. This is a wonderful increase in five vers, amounting, as it does, to nearly 6,000,000 tons, or an average of over 1,000,000 tons a year. Other changes have been made and of which no one will be proud. The production of pig iron, as nearly as it could be ascertained, was about 13,700,000 gross and the bill, which provides that on all articles was 10,491,650 to tons. This is a wonderful increase in five vers, and the component material of chief that steel rails must go to \$14 yet. So it may be assumed that this bill is not a vers, amounting, as it does, to nearly 6,000,000 tons, or an average of over 1,000,000 tons a year. Other changes have been made since 1877, however, which are equally worthy of notice. In that year the world's production of pig iron, as nearly as it could be ascertained, was about 13,700,000 gross the common talk on the Democratic iron; in 1882 their product was 16,286,610 tons. This is a wonderful increase in five to still the product was 16,286,610 tons. This is a wonderful increase in five to still the product was 16,286,610 tons. some of these reformers (Anderson, of Kansatisfied with it, and those who are protectionists in principle are not satisfied. Indeed, the only reason why the bill passed at all was a weak belief that almost anything was better then to allow the present Congress to adjourn without taking some action on tariff matters. The strongest opposition to the present

bill will undoubtedly come from the woolgrowing regions, and also from the laborers engaged in the production of certain forms ot iron and steel. From the present outlook, it seems evident that the action on this bill will return to plague the party who are repapers, writing from Paris under date of sponsible for its passage. The Wool Growers Association of Ohio, represented by Mr. vengeance, claiming that their interests have of the force generated, the wire being .16 been slaughtered at the demand of the half-

and prevent their repetition have been surrendered. Cotton ties, steel blooms, tin In each case it is reported that the results plates, wire rods, and taggersiron, the duties on which they were especially anxious to have corrected, have all been left where they were placed by Treasury decisions, and their threats of vengence are by no means mild In this, of course, they are joined by the what difference it makes if 50 per cent. of manufacturers whose interests are affected. the power be wasted, since the production and, though their denunciations of the bill has cost neither wood nor coal. We fear and of those who aided in its passage may not be as vigorous, their indignation is fully as great, and their bitterness is especially one, even when waterfalls furnish the over the fact that they have been slaughtered in the house of their friends. As to the effect of the tariff bill on the

industries of the country, it is yet too early

to venture much of an opinion. We have no doubt that in some industries there will have to be a large reduction of cost of production to enable the products of these industries to compete with foreign goods This reduction will have to be not only in the cost of raw material, but in wage though to what extent does not yet appear. It is also evident that a number of the industries that have been lost to this country through the Treasury decisions cannot be reinstated, as this bill makes these decisions law. The tin-plate industry, for example, is surely lost, as is the cotton-tie and the steelwire rod and the manufacture of taggers iron. It is also evident that this bill will have considerable effect on the pig-iron industry of the country by the admission of a large amount of scrap iron at the reduced rate of \$1.25 a ton. As the bill does not take effect before the 1st of July, it also seems probable that this may have somewhat seems probable that this may have somewhat of a depressing effect on purchases for delivery beyond that time. We imagine that this, for a while, will overbalance all good that would come from the settlement of this tariff question. The full measure of the evil or good that this bill will do, however, will not be manifest until the fall trade

#### The Production of Pig Iron at Home and Abroad.

Three-fourths of the world's total production of pig iron is made in Great Britain, the United States and Germany. The other fourth is produced in France, Belgium, Austria and Hungary, Russia, Sweden, Spain, Turkey, Italy, Australia, Japan, Switzer-land, Canada, Mexico, Norway, and, to a very limited extent, in some other countries. In 1882 the production of pig iron in Great Britain reached the enormous quantity of 8,493,287 gross tons; in the United States it was 4,623,323 tons, and in Germany it was 3,170,000 tons, of course including with Ger many the Grand Duchy of Luxembourg. The total production of these three countries in 1882 was 16,286,610 gross tons of pig iron, while the total production of the world in that year was about 21,000,000 tons. Great Britain's share of the world's production was therefore about 40 per cent., while the United States produced about 22 per cent. and Germany turned out about 15 per cent. Comparing these countries with one another we find that the United States in 1882 made 54 per cent. of the quantity which Great Britain produced, while Germany made only 37 per cent. as much as Great Britain, and but two-thirds as much as the United States.

In 1881 these three countries made 15. 419,619 gross tons of pig iron. The increased production of 1882 over 1881 was therefore 866,991 tons. Of this increase the United States is to be credited with 479,069 tons. Germany with 270,000 tons, and Great Britain with 117,922 tons. The United States is here seen to be increasing its production of pig iron more rapidly than either of the other great pig-iron producing countries. Its rate of growth is very forcibly shown by taking the statistics of production in 1877 as the basis of comparison. In that year the United States made only 2,066,594 gross tons of pig iron, which is but 45 per cent. as much as it made in 1882 : Germany turned out 1,816,600 tons, or 57 per cent. of what it made in 1882; and Great Britain produced 6,608,664 tons, or 77 per cent. of

satisfied with it, and they seem to have be ascertained, was about 13,700,000 gross suffered more in the bill than any other interest. The revenue reformers are not 49 per cent., the United States made 15 per cent. and Germany made 13 per cent. In 1882, as we have above stated, Great Brit-ain's share of the world's production fell to 40 per cent., while the share of the United States rose to 22 per cent. and that of Germany increased to 15 per cent.

The progress of the United States can be forcibly shown by taking the sta tistics of pig iron production in 1856 In that year the Hon. Abram S. Hewitt estimated the world's production at 7,000,000 gross tons, of which England produced a little over half, and the United States made about 11 per cent. The United States in that year made very little more than one fifth as much as Great Britain. The three countries we have been comparing seem destined to continue to lead all other coun destined to continue to lead all other countries in the production of pig iron. In 1882 the country which stood fourth in rank was France, but its production was only 2,000.000 gross tons, which is over 1,000,000 fons short of the production of Germany in the same year. No other country makes 750,000 tons last year, and made nearly Austria and Hungary made perhaps 500,000 tons, but no other country made even the latter quantity.

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# THE NEW TARIFF.

The following is an exact copy of the Tariff bill as finally adopted by the House. It includes also the reduction of internal revenue taxes as originated by the Senate. AN ACT

To reduce internal revenue taxation and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

That the taxes herein specified imposed by the laws now in force be, and the same are, hereby repealed, as hereinafter provided, namely: On capital and deposits of banks. hankers and national banking associations. except such taxes as are now due and pay able; and on and after the 1st day of July 1883, the stamp tax on bank checks, drafts, orders and vouchers, and the tax on matches, perfumery, medicinal preparations and other articles imposed by Schedule A following Section 3437 of the Revised Statutes: Pro-vided, That no drawback shall be allowed upon articles embraced in said schedule that shall be exported on and after the 1st day of July, 1883: Provided further, That on and after May 15th, 1883, matches may be removed by manufacturers thereof from the place of manufacture to warehouses within the United States without attaching thereto the stamps required by law, under such regulations as may be prescribed by the Commissioner of Internal Revenue.

Sec. 2. That on and after the 1st day of

May, 1883, dealers in leaf tobacco shall annually pay \$12; dealers in manufactured to bacco shall pay \$2.40; all manufacturers of tobacco shall pay \$6; manufacturers of cigars shall pay \$6; manufacturers of cigars shall pay \$6; peddlers of tobacco, snuff and cigars shall pay special taxes, as follows: Peddlers of the first class as now defined by law shall pay \$30; peddlers of the second class shall pay \$7.20, and peddlers of the third class shall pay \$7.20, and peddlers of the fourth class shall pay \$3.60. Retail dealers in leaf tobacco shall pay \$250, and 30 cents for each \$1 on the amount of their onthly sales in excess of the rate of \$500 r annum: Provided, That farmers and per annum: Provided, That farmers and producers of tobacco may sell at the place of production tobacco of their own growth and raising at retail directly to consumers, to an

amount not exceeding \$100 annually.

Sec. 3. That hereafter the special tax of a dealer in manufactured tobacco shall not be required from any farmer, planter or lum-berman who furnishes such tobacco only as rations or supplies to his laborers or employrations or supplies to his laborers or employ-ess in the same manner as other supplies are furnished by him to them: Provided, That the aggregate of the supplies of tobacco so by him furnished shall not exceed in quantity 100 pounds in any one special tax year -that is, from the 1st day of May in any year until the 30th day of April in the next year; and provided further, That such farmer, planter or lumberman shall not be, at the time he is furnishing such supplies, engaged in the general business of selling dry goods, groceries or other similar supplies, in the manner of a merchant or storekeeper.

to others than his own employees or laborers. Sec. 4. That on and after May 1st, 1883, the internal taxes on snuff, smoking and manufactured tobacco shall be 8 cents per pound; and ou cigars which shall be manufactured and sold or removed for consumption or sale on and after the 1st day of May, 1883, there shall be assessed and collected the fol lowing taxes, to be paid by the manufac-turer thereof: On cigars of all descriptions, made of tobacco or any substitute therefor, \$3 per 1000; on cigarettes weighing not more than 3 pounds per 1000, 50 cents per 1000; on cigarettes weighing more than 3 pounds per 1000, \$3 per 1000: Provided, That on all original and unbroken factory peckages of smoking and manufactured tobacco and snuff, eigars, cheroots and eigarettes held by manufacturers or dealers at the time such reduction shall go into effect, upon which the tax has been paid, there shall be allowed a drawback, or rebate, of the full amount of the reduction; but the same shall not apply in any case where the claim has not been presented within 60 days following the date of the reduction, and such rebate to the date of the reduction, and such rebate to manufacturers may be paid in stamps at the reduced rate, and no claim shall be allowed or drawback paid for a less amount than \$10. It shall be the duty of the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, to adopt such rules and regulations and to prescribe and furnish such blanks and forms as may be necessary to carry this section into effect. necessary to carry this section into effect.

of this act every manufacturer of tobacco or snuff shall, in addition to all other requirements of law, print on each package, or securely affix by pasting on each package containing tobacco or snuff manufactured by or for him, a label on which shall be printed the number of the manufactory, the district and State in which it is situated, and these

### NOTICE.

The manufacturer of this tobacco has emplied with all requirements of law. Every person is cautioned, under penalties w, not to use this package for tobacco again.

Sec. 6. That on and after the 1st day of July, 1883, the following sections shall constitute and be a substitute for Title 33 of the Revised Statutes of the United States :

### TITLE XXXIII.

### DUTIES UPON IMPORTS.

Sec. 2401. All persons are prohibited from importing into the United States from any foreign country any obscene book, pamphlet, paper, writing, advertisement, circular print, picture, drawing or other representa circular. material, or any cast, instrument or other article of an immoral nature, or any drug or medicine, or any article whatever, for the prevention of conception, or for causing unlawful abortion. No invoice or package that whatever, or any part of one, in which any plicable to any imported article, it shall be such articles are contained shall be admitted such articles are contained shall be admitted to entry; and all invoices and packages rates: Provided, That non-enumerated arwhereof any such articles shall compose a ticles similar in material and quality and part are liable to be proceeded against, secized and forfeited by due course of law.

All such prohibited articles in the course of importation shall be detained by the officer of customs, and proceedings taken against the same as prescribed in the following sec-tion: Provided, That the drugs hereinbefore mentioned, when imported in bulk and not put up for any of the purposes hereinbe-fore specified, are excepted from the operation of this section.

Sec. 2492. Whoever, being an officer, agent or employee of the Government of the United States, shall knowingly aid or abet any person engaged in any violation of any of the provisions of law prohibiting im-porting, advertising, dealing in, exhibiting or sending or receiving by mail obscene or indecent publications or representations, or means for preventing conception or procuring abortion, or other articles of indecent or immoral use or tendency, shall be deemed guilty of a misdemeanor, and shall for every offense be punishable by a fine of not more than \$5000 or by imprisonment at hard labor

for not more than 10 years, or both.

Sec. 2493. Any judge of any district or circuit court of the United States, within the proper district, before whom complaint in writing of any violation of the preceding sections is made, to the satisfaction of such judge, and founded on knowledge or belief, and, if upon belief, setting forth the grounds of such belief, and supported by oath or affirmation of the complainant, may issue, conformably to the Constitution, a warrant directed to the marshal, or any deputy maror any deputy marshal, or any deputy marshal, in the proper district, directing him to search for, seize and take possession of any such article or thing hereinbefore mentioned, and to make due and immediate return thereof, to the end that the same may be condemned and destroyed by proceedings, which shall be conducted in the same manner as other proceedings in the case of municipal seizure, and with the same right of appeal or writ of error.

Sec. 2494. The importation of neat cattle and the hides of neat cattle from any foreign country into the United States is prohibited: Provided, That the operation of this section shall be suspended as to any foreign country snan be suspended as to any foreign country or countries, or any parts of such country or countries, whenever the Secretary of the Treasury shall officially determine, and gave public notice thereof, that such importation will not tend to the introduction or spread of contagious or infectious diseases among the cattle of the United States; and the Secretary of the Treasury is hereby authorized and empowered, and it shall be his duty, to make all necessary orders and regulatory. lations to carry this law into effect, or suspend the same as therein provided, and to send copies thereof to the proper officers in the United States, and to such officers or agents of the United States in foreign countries as he shall judge necessary.

2495. Any person convicted of a willful violation of any of the provisions of the preceding section shall be fined not exceeding \$500, or imprisoned not exceeding one

year, or both, in the discretion of the court.

Sec. 2496. No watches, watch cases, watch
movements, or parts of watch movements,
or any other articles of foreign manufacture,
which shall copy or simulate the name or
trade-mark of any domestic manufacture,
shall be admitted to entry at the content shall be admitted to entry at the custom houses of the United States, unless such domestic manufacturer is the importer of the same. And in order to aid the officers of same. And in order to aid the officers of the customs in enforcing this prohibition any domestic manufacturer who has adopted trade-marks may require his name and residence and a description of his trade-marks to be recorded in books which shall be kept for that purpose in the Department of the Treasury, under such regulations as the Secretary of the Treasury shall prescribe, and may furnish to the department fac similes of such trade-marks; and thereupon the Secretary of the Treasury shall cause one or more copies of the same to be transmitted to each collector or other proper officer of the customs

Sec. 2497. No goods, wares or merchan-Sec. 2497. No goods, wares or merchandise, unless in cases provided for by treaty, shall be imported into the United States from any foreign port or place, except in vessels of the United States, or in such foreign vessels as truly and wholly belong to the citizens or subjects of that country of which the goods are the growth production. which the goods are the growth, production or manufacture, or from which such goods, wares or merchandise can only be or most wares or merchandise can only be or most usually are first shipped for transportation. All goods, wares or merchandise imported contrary to this section, and the vessel wherein the same shall be imported, together with her cargo, tackle, apparel and furniture, shall be forfeited to the United States, and such excellents are a real such such as the second such as the secon States; and such goods, wares or merchan dise, ship or vessel and cargo, shall be liable to be seized, prosecuted and condemned, in like manner and under the same regulations, or restrictions and provisions as have been age lection, distribution and remission of forted feitures to the United States by the several revenue laws

Sec. 2498. The preceding section shall not apply to vessels or goods, wares or merchan-dise imported in vessels of a foreign nation which does not maintain a similar regulation against vessels of the United State

Sec. 2499. There shall be levied, collected and paid on each and every non-enumerated article which bears a similitude, either in material, quality, texture or the use to which it may be ap lied, to any article enumerated in this title as chargeable with duty, the same rate of duty which is levied and charged on the enumerated article which it most resembles in any of the parwhich it most resembles in any of the par-ticulars before mentioned; and if any nonenumerated article equally resembles two or more enumerated articles on which different rates are chargeable, there shall be levied, collected and paid on such non-enumerated article the same rate of duty as is chargeable on the article which material, or any cast, instrument or other paying the highest duty; and on all armaterial, or any cast, instrument or other materials the duty shall be assessed at the highest rates at which the component material of chief value may be chargeable.

the manufacture of which no dutiable ma

the manufacture of which no dutiable materials are used, shall be free.

Sec. 2500. Upon the re-importation of articles once exported of the growth, product or manufacture of the United States, upon which no internal tax has been assessed or paid, or upon which such tax has been paid and refunded by allowance or drawback, there shall be levied, collected and paid a duty equal to the tax imposed by and paid a duty equal to the tax imposed by

the internal revenue laws upon such articles.

Sec. 2501. A discriminating duty of 10 per cent. ad valorem, in addition to the duties imposed by law, shall be levied, collected and paid on all goods, wares and merchandise which shall be imported on vessels not of the United States; but this discriminating duty shall not apply to goods, wares and mer chandise which shall be imported in vessels not of the United States, entitled by treaty or any act of Congress, to be entered in the ports of the United States on payment of the same duties as shall then be paid on goods, wares and merchandise imported in vessels

of the United States.

Sec. 2502. There shall be levied, collected and paid upon all articles imported from for-eign countries, and mentioned in the schedules berein contained, the rates of duty which are, by the schedules, respectively prescribed, namely:

#### SCHEDULE A. Chemical Products.

Glue, 20 per cent. ad valorem. Beeswax, 20 per cent. ad valorem. Gelatine and all similar preparations, 30

er cent. ad valorem.

Glycerine, crude, brown or yellow, of the pecific gravity of 1.25 or less at a emperature of 60° F., not purified by refin-

ng or distilling, 2 cents per pound.
Glycerine, refined, 5 cents per pound.
Fish glue or isinglass, 25 per cent. ad alorem.

Phosphorus, 10 cents per pound.
Soap, hard and soft, all of which are not otherwise specifically enumerated or pro-vided for in this act, and castile soap, 20 per ent. ad valorem. Fancy, perfumed and all descriptions of

Sponges, 20 per cent. ad valorem.
Sumac, ground, 3-10ths of 1 cent per cond, and sumac extract, 20 per cent. ad

Acid, acetic, acetous, or pyroligneous acid.

Acid, acetic, actions, or pyrongheous acid, not exceeding the specific gravity of 1.047.

2 cents per pound; exceeding the specific gravity of 1.047, 10 cents per pound.

Acid, citric, 10 cents per pound.

Acid, tartaric, 10 cents per pound. Camphor, refined, 5 cents per pound Castor beans or seeds, 50 cents per bushe

of 50 pounds. 50 pounds. Castor oil. 80 cents per gallon. Cream of tartar, 6 cents per pound. Dextrine, burnt starch, gum substitute

British gum, z cent per pound. Extract of hemlock and other bark used for tanning, not otherwise enumerated or provided for in this act, 20 per cent. ad valo-

Glucose or grape sugar, 20 per cent. ad Indigo, extracts of and carmined, to per

ent ad valorem.

Iodine, resublimed, 40 cents per pound Liquorice, paste or roll, 7½ cents per ound; liquorice juice, 3 cents per pound.
Oil of bay leaves, essential, or bay rum

sence or oil, \$2.50 per pound.
Oil, croton, 50 cents per pound.
Oil, flaxseed or linseed and cotton-seed oil,

25 cents per gallon, 7½ pounds weight to be estimated as a gallon. Hemp seed oil and rape seed oil, 10 cents er gallon.

er gallon. Soda and potassa, tartrate or rochelle salt, cents per pound. Strychnia or strychnine, and all salts

thereof, so cents per ounce. Tartars partly refined, including lees crystals, 4 cents per pound.

Alumina, alum, patent alum, alum substi-tute, sulphate of alumina, and aluminous cake and alum in crystals or ground, 60 cents

er 100 pounds.
Ammonia, anhydrous, liquified by pressure per cent. ad valorem.

Ammonia aqua or water of ammonia, 20 per cent. ad valorem. Ammonia, muriate of or sal-ammoniac, 10

er cent. ad valorem.

Ammonia, carbonate of, 20 per cent. ad Ammonia, sulphate of, 20 per cent. ad

All imitations of natural mineral waters and all artificial mineral waters, 30 per cent. ad valorem

valorem. Baryta, sulphate of or barytes, unmanuectured, 10 per cent. ad valorem. Baryta, sulphate of or barytes, manufac-

rred, ¼ cent per pound. Refined borax, 5 cents per pound. Pure boracic acid, 5 cents per pound; com-

nercial boracic acid, 4 cents per pound; orate of lime, 3 cents per pound; crude borax, 3 cents per pound.

Cement, Roman, Portland and all others, 20 per cent. ad valorem.

Whiting and Paris white, dry, ½ cent per pound; ground in oil or putty, I cent per

ound.
Prepared chalk, precipitated chalk, French talk, red chalk, and all other chalk preparations which are not specially enumerated or rovided for in this act, 20 per cent. ad Chromic acid, 15 per cent. ad valorem.

Chromate of potash, 3 cents per pound.
Bi-chromate of potash, 3 cents per pound.
Cobalt, oxide of, 20 per cent. ad valorem.
Copper, sulphate of, or blue vitriol, 3 cents Iron, sulphate of, or copperas, 3-10ths

cent per pound.

Acetate of lead, brown, 4 cents per pound.

Acetate of lead, white, 6 cents per pound.

White lead, when dry or in pulp, 3 cents

per pound. When ground or mixed in oil, 3 cents per Litharge, 3 cents per pound.

Orange mineral and red lead, 3 cents per

Nitrate of lead, 3 cents per pound. Magnesia, medicinal, carbonate of, 5 cents

Magnesia, calcined, to cents per pound.
Magnesia, sulphate of, or Epsom salts, ½ ad volorem. cent per pound.

Crude, carbonate of, or fused, and costic otash, 20 per cent. ad valorem.

Chlorate of, 3 cents per pound. Hydriodate, iodide and iodate of, 50 cents er pound.

Prussiate of, red, 10 cents per pound Prussiate of, red, 10 cents per pound.

Prussiate of, yellow, 5 cents per pound.

Nitrate of, or saltpeter, crude, 1 cent per

per pound. Soda :

Soda ash, ¼ cent per pound. Soda, sal, or soda crystals, ¼ cent per

Bi-carbonate of, or super-carbonate of, and alaratus, calcined or pearl ash, 1½ cents er pound.

Hydrate or caustic, I cent per pound. Sulphate, known as salt cake, crude or efined, or niter cake, crude or refined, and lauber's salt, 20 per cent ad valorem.

Soda, silicate of, or other alkaline silicate,

Sulphur:

Sulphur:
Refined, in rolls, \$10 per ton.
Sublimed, or flowers of, \$20 per ton.
Wood tar, 10 per cent. ad valorem.
Coal tar, crude, 10 per cent. ad valorem.
Coal tar, products of such as naphtha, enzine, benzole, dead oil, and pitch, 20 per

ent. ad valorem.

All coal-tar colors or dyes, by whatever name known and not specially enumerated or provided for in this act, 35 per cent. ad

All preparations of coal tar not colors or lyes, not specially enumerated or provided or in this act, 20 per cent. ad valorem.
Logwood and other dyewoods, extracts

and decoctions of, to per cent, ad valorem. Ultramarine, 5 cents per pound.
Turpentine, spirits of, 20 cents per gallon.

Colors and paints, including lakes, whether dry or mized, or ground with water or oil. and not specially enumerated or provided

The pigment known as boneblack, and ivory-drop black, and bone char, 25 per ent. ad valorem.

Ocher and ochery earths, umber and

umber earths and sienna and sienna earths, when dry, ½ cent per pound; when ground in oil, 1½ cents per pound.

Zine, oxide of, when dry, 1½ cents per pound.

Zinz, oxide of, when ground in oil, 134 nts per pound.

All preparations known as essential oils, expressed oils, distilled oils, rendered oils, alkalis, alkaloids and all combinations of any of the foregoing, and all chemical compounds and salts, by whatever name known, and not specially enumerated or provided for in this act, 25 per cent. ad valorem.

Preparations: All medicinal preparations known as cerates, conserves, decoctions, emulsions, extracts, solid or fluid; infusions, juices, liniments, lozenges, mixtures, mucilages, ointments, oleo-resins, pills, plasters, powders, resins, suppositories, syrups, vine-gars and waters, of any of which alcohol is not a component part, and which are not specially enumerated or provided for in this

act, 25 per cent. ad valorem.

All barks, beans, berries, balsams, buds, bulbs and bulbous roots and excrescences, such as nutgalls, fruits, flowers, dried fibers, grains, gums and gum-resins, herbs, leaves, lichens, mosses, nuts, roots and stems, spices, vegetables, seeds (aromatic, not garden seeds), and seeds of morbid growth, weeds, woods used expressly for dyeing and dried insects, any of the foregoing of which are not edible, but which have been advanced in value or condition by refining and grinding, or by other process of manufac-ture, and not specially enumerated or pro-vided for in this act, 10 per cent. ad va-

All non-dutiable crude minerals, but which have been advanced in value or condition by refining or grinding, or by other process of manufacture, not specially enumerated or provided for in this act, to per

cent. ad valorem.

All ground or powdered spices not specially enumerated or provided for in this act,

the public as proprietary articles, or prepared according to some private formula, as reaccording to some private formula, as re-medies or specifics for any disease or diseases, whatever affecting the human or animal body, including all toilet prepara tions whatever, used as applications to the hair, mouth, teeth or skin, not specially enumerated or provided for in this act, 50 per

ent. ad valorem. Alcoholic preparations:
Alcoholic perfumery, including cologue cater, \$2 per gallon and 50 per cent. ad

Distilled spirits, containing 50 per cent. of anhydrous alcohol, \$1 per gallon.
Alcohol, containing 94 per cent. anhydrous

alcohol, \$2 per gallon. alcohol, \$2 per gallon.

Alcoholic compounds, not otherwise specially enumerated or provided for, \$2 per gallon for the alcohol contained and 25 per

cent. ad valorem.
Chloroform, 50 cents per pound.
Collodion, and all compounds of pyroxyline, by whatever name known, 50 cents per
pound; rolled or in sheets, both not made up into articles, 60 cents per pound, and when in finished or partly finished articles, 60 cents per pound and 25 per cent. ad valorem.

Ether, sulphuric, 50 cents per pound. Hoffman's anodyne, 30 cents per pound.

Iodoform, S: per pound. Iodoform, §? per pound. Acid, tannic and tannia, \$1 per pound. Ether, nitrous, spirits of, 30 cents per

Santonine, \$3 per pound.

Amylic alcohol, or fusil oil, to per cent

Oil of cognac, or cenantic ether, \$4 per

Fruit ethers, oils, or essences, \$2.50 per Oil or essence of rum, 50 cents per ounce.

Ethers of all kinds, not specially enumer-ated or provided for in this act, \$1 per pound, Coloring for brandy, 50 per cent. ad val-

Preparations: All medicinal preparations Nitrate of, or refined saltpeter, 1½ cents or pound.

Nitrate of, or refined saltpeter, 1½ cents or pound.

Sulphate of, 20 per cent ad valorem.

Freparations: All medicinal preparations known as essences, ethers, extracts, mixtures, spirits, tinctures and medicated wines, of which alcohol is a component part, non specially enumerated or provided for in this

act, 50 cents per pound.

Varnishes of all kinds, 40 per cent, ad valorem, and on spirit varnishes, \$1.32 addi-

tional per gallon.
Opium, crude, containing 9 per cent. and over of morphia, \$1 per pound. The importation of opium containing less than 9 per cent. morphia is hereby prohibited.

Opium, prepared for smoking, and all other preparations of opium not specially enumerated or provided for in this act, Sio per pound; but opium prepared for smoking, and other preparations of opium deposited in bonded warehouses shall not be removed therefrom for exportation without payment of duties, and such duties shall not be refunded.

Opium, aqueous extract of, for medicinal uses, and tincture of, as laudanum, and all other liquid preparations of opium not specially enumerated or provided for in this ct. 40 per cent. ad valorem.

Morphia or morphine, and all salts thereof, \$1 per ounce. Schedule B.

#### Earthenware and Glassware.

Brown earthenware, common stoneware gas retorts and stoneware not ornamented.

gas retorts and stoneware not ornamented, 25 per cent. ad valorem.

China, porcelain, parian and bisque ware, earthen, stone and crockery, including plaques, ornaments, charms, vases and statuettes, painted, printed or gilded, or otherwise decorated or ornamented in any manner, and on earthern, stone and crockery ware, painted or gilded, 60 per cent. ad

valorem. China, porcelain, parian and bisque were, plain white and not ornamented or decorated in any manner, 55 per cent. ad valorem. All other earthen, stone and crockery ware,

white, glazed, edged, printed, painted, dipped or cream colored, composed of earthy or mineral substances, not specially

earthy or mineral substances, not specially enumerated or provided for in this act, 50 per cent. ad valorem.

Stoneware, above the capacity of 10 gallons, 20 per cent. ad valorem.

Encaustic tiles, 35 per cent. ad valorem.

Brick, fire-brick and roofing and paving tile, not specially enumerated or provided for in this act, 2c per cent. ad valorem.

Slates also require slate chimman pieces. Slates, slate pencils, slate chimney piece mantels, slabs for tables, and all other man

ufactures of slate, 30 per cent. ad valorem.
Roofing slates, 25 per cent. ad valorem.
Green and colored glass bottles, vials, demi johns and carboys (covered or uncovered), pickle or preserve jars, and other plain, molded or pressed green and colored bottle glass, not cut, engraved or painted, and not specially enumerated or provided for in this act, I cent per pound; if filled, and not otherwise in this act provided for, said articles shall pay 30 per cent. ad valorem in addition to the duty on the contents.

Flint and lime glass bottles and vials, and ther plain, molded or pressed flint or lime glasware, not specially enumerated or pro-vided for in this act, 40 per cent. ad valorem; if filled, and not otherwise in this act provided for, said articles shall pay, exclusive of contents, 40 per cent. advalorem in addi-tion to the duty on the contents.

Articles of glass, cut, engraved, painted, colored, printed, silvered, stained, silvered or gilded, not including plate-glass or looking-glass plates, 45 per cent ad valorem.

All glass bottles and decanters, and other

like vessels of glass shall, if filled, pay the same rates of duty, in addition to any duty chargeable on the contents, as if not filled, except as in this act otherwise specially pro

Cylinder and crown glass, polished, not exceeding 10 x 15 inches square, 2½ cents per square foot : above that, and not exceed-

All earths or clays, unwrought or unmanufactured, not specially enumerated or provided for in this act, \$1.50 per ton.

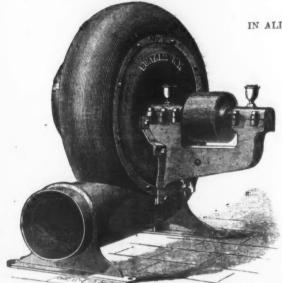
All earths or clays, wrought or manufactured, not specially enumerated or provided for in this act, \$3 per ton; china clay, or kaoline, \$3 per ton.

Proprietary preparations, to wit: All cosmetics, pills, powders, troches or lozenges, syrups, cordials, bitters, anodynes, tonics, plasters, liniments, salves, ointments, pastes, drops, waters, essences, spirits, olds, or preparations or compositions recommended to the public as proprietary articles, or prepared and common window glass, imported in boxes containing 50 square feet, as nearly as sizes will permit, now known and commer cially designated as 50 feet of glass, single thick and weighing not to exceed 55 pounds of glass per box, shall be entered and computed as 50 pounds of glass only; and that said kinds of glass imported in boxes consaid kinds of glass imported in boxes con-taining, as nearly as sizes will permit, 50 feet of glass, now known and commercially designated as 50 feet of glass, double thick and not exceeding 90 pounds in weight, shall be entered and computed as 80 pounds of glass only; but in all other cases the duty shall be computed according to the actual weight of glass.
Fluted, rolled or rough plate-glass, not in

cluding crown, cylinder, or common window glass, not exceeding 10 x 15 inches square 75 cents per 100 square feet; above that, not exceeding 16 x 24 inches square, I comper square foot; above that, and not exceed ing 24 x 30 inches square, 1'2 cents per square foot; all above that, 2 rents per square foot. And all fluted, rolled, or rough plate-glass, weighing over 160 pounds 100 square feet, shall pay an additional on the excess at the same rates herein

posed. Cast polished plate place, in altered, not exceeding 10 by \$5 inches square, 3 reals per square foot; above that, and not exceeding 16 by 24 inches square, 5 cents per quare foot; above that, and not exceeding NEW AND IMPROVED

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CHESTERMAN'S TAPES, RULES, &c., Stubs' Files, Tools and Steel Wire, GROBET SWISS FILES.

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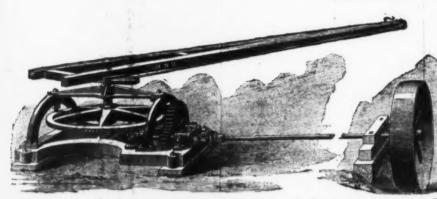
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# **NEW IRON HORSE-POWER**



This is an entirely new and original pattern from designs of our own. It is constructed of iron throughout, except the levers, and is recommended for all kinds of work re. PLOWS, CULTIVATORS, HARROWS. quiring one horse power, as, for instance, the driving of corn shellers, corn mills, grindstones, fanning mills, small

plate, which, in turn, is constructed to bolt to timber foundation in the earth or to a floor. This arrangement insures perfect rigidity of all its parts, and a fixed relation between the gears and shafts, which is so necessary to avoid friction. These powers are provided with two sizes of gearing upon

the usual gait of a horse, either 37 or 74 revolutions per minute. The pulley is 30 inches diameter by 4 inches face, but, in case of necessity, to communicate a given speed, we will change it as may be required.

PRICE, \$50.

Liberal Discounts to the Trade.

cotton gins, feed cutters, grating machines, pumps, &c. The upper works are firmly bolted to a solid iron bed

the internal shafts; hence the line shaft may be driven at

We also Manufacture at our Extensive Works at BERGEN POINT, N. J., A FULL LINE OF

Agricultural Implements, INCLUD

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HIDE ROLL AND LEVER CUTTERS.

FANNING MILLS. TRUCKS & WHEELBARROWS,

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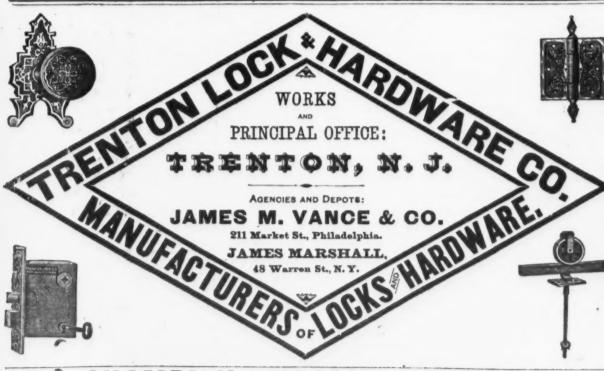
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WITH PATENT ADJUSTABLE ATTACHMENT. The only Saw that can be adjusted for either a One-Man or a Two-Man Saw. We make the following lengths, 314, 4, 414, 5 feet. Send for sample.

WHEELER, MADDEN & CLEMSON MFG. CO., Middletown, N. Y.

LANE'S MEASURING FAUCET. Price, \$3.00.

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WOOD & WROUGHT IRON SHELLS.

PENFIELD BLOCK CO., Lockport, N. Y. H. B. NEWHALL CO, 105 Chambers St., S. H. & E. Y. MOORE, 163 & 165 Lake St., Chic go Agents. New York Agents.

NATIONAL WIRE AND IRON CO., Detroit, Mich.

Casting Brushes, Sand and Coal Screens, WEATHER VANES AND STABLE FIXTURES.

24 by 30 inches square, 8 cents per square above that, and not exceeding 24 by o inches square, 25 cents per square foot; ll above that, 50 cents per square foot. Cast polished plate glass, silvered or look-

Cast poinsned place glass, silvered of con-ing-glass plates, not exceeding 10 by 15 inches square, 4 cents per square foot; above that, and not exceeding 16 by 24 inches square, 6 cents per square foot; above that, and not exceeding 24 by 30 inches square, 10 cents per square foot; per pound. above that, and not exceeding 24 by 60 inches square, 35 cents per square foot; all

above that, 60 cents per square foot.

But no looking-glass plates or plate glass, silvered, when framed, shall pay a less rate of duty than that imposed upon similar glass of like desoription not framed, but shall be liable to pay in addition thereto, 30 per

cent. ad valorem, upon such frames.

Porcelain and Bohemian glass, chemical glassware, painted glassware, stained glass and all other manufactures of glass or of which glass shall be the component material of chief value, not specially enumerated or consider for in this set. provided for in this act, 45 per cent. ad valorem.

#### SCHEDULE C. Metals.

Iron ore, including manganiferous iron ore, also the dross or residuum from burnt pyrites, 75 cents per ton. Sulphur ore, as pyrites or sulphuret of iron in its natural state, containing not more than 3½ per cent. of copper, 75 cents per ton: Provided, that ore containing more than 2 per cent. of copper shall pay, in addition thereto, 2½ cents per pound for the copper contained therein.

Iron in pigs, iron kentledge, spiegeleisen. wrought and cast scrap iron and scrap steel, 3 cent per pound; but nothing shall be cent per pound; deemed scrap iron or scrap steel except waste or refuse iron or steel that has been in actual use and is fit only to be remanu-

Iron railway bars, weighing more than 25 pounds to the yard, .7 cent per pound.
Steel railway bars and railway bars made in part of steel, weighing more than 25 pounds to the yard, \$17 per ton.

Bar iron, rolled or hammered, comprising flats not less than 1 inch wide, nor less than ½ inch thick, & cent per pound; comprising round iron not less than ¾ inch in diameter, and square iron not less than ¾ inch square, I cent per pound; comprising flats less than inch wide, or less than ¼ inch thick; round iron less than ¼ inch, and not less than 7-16ths inch in diameter, and square iron less than ¾ inch square, 1.1 cents per pound: Provided, that all iron in slabs, blooms, loops or other forms, less finished than iron in bars and more advanced than pig iron, except castings, shall be rated as iron in bars, and pay a duty accordingly; and none of the above iron shall pay a less rate of duty than 35 per cent. ad valorem: Provided further, that all iron bars, blooms, billets or sizes or shapes of any kind, in the manufacture of which charcoal s used as fuel, shall be subject to a duty of \$22 per ton.

Iron or steel tee rails, weighing not over 25 pounds to the yard, .9 cent per pound; iron or steel flat rails, punched, .8 cent per

Round iron, in coils or rods. less than 7-16ths inch in diameter, and bars or shapes of rolled iron not specially enumerated or provided for in this act, 1.2 cents per

Boiler, or other plate iron, sheared or unsheared, skelp iron, sheared or rolled in grooves, 1½ cents per pound; sheet iron, common or black, thinner than 1½ inches and not thinner than No. 20 wire gauge, 1.1 cents per pound; thinner than No. 20 wire gauge, and not thinner than No. 25 20 wire gauge, and not thinner than No. 25 wire gauge, 1.2 cents per pound; thinner than No. 25 wire gauge, and not thinner than No. 25 wire gauge, 1.5 cents per pound; thinner than No. 29 wire gauge, and all iron commercially known as common or black taggers iron, whether put up in boxes or bundles or not, 30 per cent. ad valorem. And provided, that on all such iron and steel sheets or plates aforesaid, excepting on what are known commercially as tin plates, terne plates and taggers tin, and hereafter provided for, when galvanized or coated with zinc or spelter or other metals, or any alloy of those metals, 34 cent or coated with zinc or spelter or other metals, or any alloy of those metals, 34 cent ound additional.

Polished, planished or glanced sheet iron or sheet steel, by whatever name designated. or sheet steet, by whatever hame designated, 2½ cents per pound: Provided, That plate or sheet or taggers iron, by whatever name designated, other than the polished, planished or glanced herein provided for, which has been pickled or cleaned by acid, or by any other material or process, and which is cents or less per pound, .6 cent. per pound. called rolled, shall pay 1/4 cent per pound Iron or steel, flat, with longitudinal ribs for more duty than the corresponding gauges the manufacture of fencing, .6 cent per mmon or black sheet or taggers iron.

Iron or steel sheets, or plates, or taggers iron, coated with tin or lead, or with a mixture of which these metals is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates and taggers tin, I cent per pound; corrugated or crimped sheet iron or steel, 1.4 cents per pound.

band, or scroll, or other iron, inches or less in width and not thinner than No. 10 wire gauge, 1 cent per pound; thinner than No. 10 wire gauge and not thinner than No. 20 wire gauge, 1.2 cents per pound; thinner than No. 20 wire gauge, 1.4 cents per pound: Provided, That all articles not specially enumerated or provided for in this act, whether wholly or partly manufactured, made from sheet, plate, hoop, and, or scroll iron herein provided for, or of which such sheet, plate, hoop, band, or scroll iron shall be the material of chief te, shall pay ¼ cent per pound more with that imposed on the iron from they are made, or which shall be such material of chief value.

and steel cotton ties or hoops for baling purposes, not thinner than number 20

Cast-iron vessels, plates, stove plates, and-irons, sad-irons, tailors' irons, hatters' irons, and castings of iron, not specially summerated or provided for in this act, 11/4

pound.

Iron or steel railway fish plates or splice

16 ounces to the rooc, 21/2 cents per rooo;

Wrought iron or steel spikes, nuts and washers, and horse, mule or ox shoes, 2 cents

Anvils, anchors or parts thereof, millirons and mill-cranks of wrought iron, and wrought iron for ships, and forgings of iron and steel for vessels, steam engines and lo-comotives, or parts thereof, weighing each

25 pounds or more, 2 cents per pound. Iron or steel rivets, bolts, with or without threads or nuts, or bolt blanks, and finished hinges or hinge blanks, 2½ cents per pound.
Iron or steel blacksmiths' hammers and sledges, track tools, wedges and crowbars,

1/2 cents per pound.
Iron or steel axles, parts thereof, axle bars, axle blanks or forgings for axles, without reference to the stage or state of manu-

facture, 2½ cents per pound.

Forgings of iron and steel or forged iron, of whatever shape or in whatever stage of fron ore, including manganiferous iron re, also the dross or residuum from burnt vrites, 75 cents per ton. Sulphur ore, as and all other wrought-iron or steel nails, not specially enumerated or provided for in

this act, 4 cents per pound.

Boiler tubes or flues, or stays iron or steel, 3 cents per pound. es, or stays of wrought

Other wrought iron or steel, tube or pipes,

4 cents per pound. Chain or chains of all kinds, made of iron or steel, not less than  $\frac{1}{3}$  inch in diameter,  $\frac{1}{3}$  cents per pound; less than  $\frac{3}{3}$  inch and not less than  $\frac{1}{3}$  inch in diameter, 2 cents per pound; less than  $\frac{3}{3}$  inch in diameter, 2 cents per pound.

Cross-cut saws, 8 cents per linear foot Mill, pit and drag saws, not over 9 inches wide, 10 cents per linear foot; over 9 inches

wide, 15 cents per linear foot.
Circular saws, 30 per cent. ad valorem.
Hand, back and all other saws, not

Hand, back and all other saws, not specially enumerated or provided for in this act, 40 per cent. ad valorem.

Files, file blanks, rasps and floats of all cuts and kinds, 4 inches in length and under, 35 cents per dozen; over 4 inches in length and under 0 inches, 75 cents per dozen; 9 inches in length and under 14 inches, \$1.50 per dozen; 14 inches in length and over, \$2.50 per dozen.

Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks

slabs, by whatever process made; die blocks or blanks; billets and bars, and tapered or beveled bars; bands, hoops, strips and sheets of all gauges and widths; plates of all thicknesses and widths; steamer, crank and other shafts; wrist or crank pins; connecting valuant interests or cr necting-rods and piston-rods, pressed, sheared or stamped shapes, or blanks of sheet or plate steel, or combination of steel and iron, punched or not punched; hammer-molds or swaged steel; gun molds not in bars; alloys used as substitutes for steel tools; all alloys used as substitutes for seer toos, and descriptions and shapes of dry-sand, loam or iron-molded steel castings; all of the above classes of steel not otherwise specially provided for in this act, valued at 4 cents a pound or less, 45 per ceut. ad valorem; above 4 cents a pound and not above 7 cents per pound, 2 cents per pound; valued above 7 cents and not above 10 cents per pound, 2½ cents per pound; valued at above 10 cents per pound, 3½ cents per pound; Provided, That on all iron or steel bars, rods, strips or steel sheets, of whatever shape, and on all iron or steel bars of irregshape, and on all iron or steel bars of irreg-ular shape or section, cold-rolled, cold-ham-mered or polished in any way in addition to the ordinary process of hot-rolling or ham-mering, and on steel circular-saw plates, there shall be paid ¼ cent. per pound in addition to the rates provided for in this act. Iron or steel beams, girders, joists, angles, channels, car-truck channels, T, columns and nosts, or parts or sections of columns

and posts, or parts or sections of columns and posts, deck and bulb beams, and build ing forms, together with all other structural

shapes of iron or steel, 1 1/4 cents per pour Steel wheels and steel-tired wheels railway purposes, whether wholly or partly and iron or steel locomotive, car other railway tires, or parts thereof, wholly or partly manufactured, 2½ cents per pound; iron or steel ingots, cogged in-gots, blooms, or blanks for the same, without regard to the degree of manufacture, 2

cents per pound.

Iron or steel rivet, screw, nail and fence wire rods, round, in coils and loops, not lighter than No. 5 wire gauge, valued at 3½ pound.

Screws, commonly called wood screws, inches or over in length, 6 cents per pound; 1 inch and less than 2 inches in length, 8 cents per pound; over ½ inch and less than 1 inch in length, 10 cents per pound; ½ inch and less in length, 12 cents per pound.

Iron or steel wire, smaller than No. 5 and

not smaller than No. 10 wire gauge, 11/4 per pound; smaller than No. 10 and not smaller than No. 16 wire gauge, 2 cents per pound; smaller than No. 16 and not smaller than No. 26 wire gauge, 2½ cents per pound; smaller than No. 26 wire gauge, 3 cents per pound: Provided, That iron or steel wire covered with cotton, silk or other material, and wire commonly known as crinoline, corset and hat wire, shall pay 4 cents per pound in addition to the foregoing rates: And provided further, That no article made from iron or steel wire, or of which iron or steel wire is a component part of chief value, shall pay a less rate of duty than the iron or steel wire from which it is made either wholly or in part. And provided further, that iron or steel wire cloths, and iron or steel wire nettings, made in meshes of any form, shall pay a duty equal in amount to that imposed on a duty equal in amount to that imposed on galvanized iron or steel wire of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound.

Cast-iron pipe of every description I cent per pound.

Cast-iron vessels, plates, stove plates, and irons, sad-irons, tailors' irons, and castings of iron, not specially enumerated or provided for in this act, 1% sents per pound.

Cut tacks, brads, or sprigs, not exceeding

a duty equal in amount to that imposed on the timposed on the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the same gauge, and addition to the rate in posed on the wire of this haddition to the rates herein provided, there shall be saven gauge, and 2 of the same gauge, and 2 all other articles of sawed lumber, \$2 per pound; of the rarticles of saved lumber, \$2 per pound; of the rarticles of saved lumber, \$2 per pound; of the rarticles of saved lumber, \$2 per pound; of the rarticles of saved lumber, \$2 per

Steel not specially enumerated or provided exceeding 16 ounces to the 1000, 3 cents per bars, 1¼ cents per pound.

Malleable iron castings, not specially enumerated or provided for in this act, 2 cents or converted, cast or made from iron or is produced by cementation, and valorem.

Or converted, cast or made from iron or is produced by cementation, and valorem. ores, by the crucible, Bessemer, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin or open-hearth process, or by the equivalent of either, or by the combination of two or more of the processes or their equivalents, or by any fusion or other process which pro-duces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable iron castings, shall be classed and denominated as steel.

and denominated as steel.

No allowance or reduction of duties for partial loss or damage, in consequence of rust or of discoloration, shall be made upon any description of iron or steel, or upon any partly manufactured article of iron or steel, or upon any manufacture of iron or steel.

Argentine, albata or German silver, un-

Copper, imported in the form of ores, 2½ is the chief component part, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

Wood, unmanufactured, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

Wood, unmanufactured, not specially enumerated or provided for in this act, 20 per copper, fit only for remanufacture, clippings from new copper, and all composition metal of which copper is a component material of chief related to the control of the copper is a component material of chief related to the copper is a component material of chief related to the copper is a component material of chief related to the copper is a component material of copper is a component material of chief related to the chief component part, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

Schedule F of which copper is a component material of chief value, not specially enumerated or provided for in this act, 3 cents per pound; copper in plates, bars, ingots, Chili or other pigs, and in other forms not manufactured, or enumerated in this act, 4 cents per pound; in rolled plates, called brazier's copper, sheets, rods, pipes and copper bottoms and

all manufactures of copper, or of which copper shall be a component of chief value, specially enumerated or provided for in

pound pound.

Lead, in pigs and bars, molten and old refuse lead run into blocks and bars and old all sugars above No. 13 and not above No. refuse lead run into blocks and bars and old scrap lead, fit only to be remanufactured, 2

Lead, in sheets, pipes or shot, 3 cents per cound.

20 Dutch Standard, 3 cents per pound.

All sugars above No. 20 Dutch Standard, ound.

Nickel, in ore, matte or other crude form 3-

To cents per pound.

Zinc, spelter or tutenegue, in blocks or pigs, and old worn-out zinc, fit only to be remanufactured, 1½ cents per pound; zinc, spelter or tutenegue in sheets, 2½ cents per pound.

Sugar candy, not colored, 5 cents per pound.

All other confectionery, not specially enumerated or provided for in this act, made wholly or in part of sugar, and on sugars after being refined, when tinctured, colored, or in any way adulterated, valued at 30 cents

Sheathing, or yellow metal, not wholly of copper, nor wholly nor in part of iron, ungalvanized, in sheets 48 inches long and 14 to 34 otherwise than by the pound, 50 per cent. ad valueres per square foot, 35 per cent. ad valueres.

lorem Antimony, as regulus or metal, 10 per cent

d valorem.

Dutch or bronze metal in leaf, 10 per cent. ad valorem. Steel plates, engraved, stereotype plates,

Muskets, rifles and other firearms not specially enumerated or provided for in this act, 25 per cent. ad valorem.

All sporting breech-loading shot guns, and pistols of all kinds, 35 per cent. ad va-Forged shot-gun barrels, rough-bored, 10 pound.

per cent. ad valorem.

Needles, for knitting or sowing machines, 55 per cent. ad valorem.

Needles, sewing, darning, knitting, and all others not specially enumerated or provided for in this act, 25 per cent. ad valorem.

Pen-knives, pocket-knives of all kinds, oper cent. ad valorem.

and razors, 50 per cent. ad valorem; swords, sword-blades and side-arms, 35 per cent. ad valorem.

valorem.

Pens, metallic, 12 cents per gross; penholder tips, and penholders, or parts thereof, 30 per cent. ad valorem.

Pins, solid head or other, 30 per cent. ad valorem.

Britannia ware. and plated and gilt arti cles and wares of all kinds, 35 per cent. ad per pound. valorem

Quicksilver, 10 per cent. ad valorem Silver leaf, 75 cents per package of 500 Type metal, 20 per cent. ad valorem. Chromate of iron, or chromic ore, 15 per

ent ad valorem Mineral substances in a crude state, and metals unwrought, not specially enumerated or provided for in this act, 20 per cent. ad

Manufactures, articles or wares not spe cially enumerated or provided for in this act, composed wholly or in part of iron, steel, copper, lead, nickel, pewter, tin, zinc, gold, silver, platinum or any other metal, and whether partly or wholly manufactured, 45 per cent. ad valorem.

SCHEDULE D. Wood and Wooden Wares,

Timber, hewn and sawed, and timber used spars and in building wharves, 20 per cent. ad valorem. ent. ad valorem.
Timber, squared or sided, not specially numerated or provided for in this act, I cent

per cubic foot. Sawed boards, plank, deals and other lumber of hemlock, white wood, sycamore and bass wood, \$1 per 1000 feet, board measure :

Hubs for wheels, posts, last blocks, wagon for in this act, 45 per cent. ad valorem: blocks, ore blocks, gun blocks, heading Provided, That all metal produced from blocks and all like blocks or sticks, rough iron or its ores, which is cast and malleable, hewn or sawed only, 20 per cent. ad valorem. hewn or sawed only, 20 per cent. ad valo-

Staves of wood of all kinds, to per cent. Pickets and palings, 20 per cent. ad valo-

Laths, 15 cents per 1000 pieces. Shingles, 35 cents per 1000.
Shingles, 35 cents per 1000.
Pine clapboards, \$2 per 1000.
Spruce clapboards, \$1.50 per 1000.
House or cabinet furniture, in piece or ough, and not finished, 30 per cent. ad

Cabinetware and house furniture, finished,

per cent. ad valorem. Casks and barrels, empty sugar-how ooks and packing boxes, and packing-box shooks of wood, not specially enumerated or

provided for in this act, 30 per cent. ad valo-Manufactures of cedar wood, granadilla,

ebony, mahogany, rosewood and satin wood, 35 per cent. ad valorem. Manufactures of wood, or of which wood

# Sugar.

All sugars not above No. 13 Dutch Standard in color, shall pay duty on their polariscopic test as follows, viz :

All sugars not above No. 13 Dutch Standard in color, all tank bottoms, syrups of cane juice or of beet juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above 75 shall pay a duty of 1.40 cents per pound, and for every additional degree or fraction brass, in bars or pig, old brass and clippings from brass or Dutch metal, 1½ cents

tional. Lead ore and lead dross, 11/2 cents per color, shall be classified by the Dutch Stand-All sugars above No. 13 Dutch Standard in

All sugars above No. 16 and not above No.

50 cents per pound.
Molasses testing not above 56° by the ponot ready for consumption in the arts, 15 Molasses testing not above 56° by the po-cents per pound on the nickel contained lariscope shall pay a duty of 4 cents per gal-

Nickel, nickel oxide, alloy of any kind in which nickel is the element of chief value,

Sugar candy, not colored, 5 cents per gallon.

ad valorem.

Bronze powder, 15 per cent. ad valorem.

Cutlery, not specially enumerated or provided for in this act, 35 per cent. ad valorem; shall be subject to the same duties wrappers, shall be subject to the same duties.

Leaf tobacco, of which 85 per cent. is of the requisite size and of the necessary fine-Steel plates, engraved, stereotype plates, and new types, 25 per cent. ad valorem.

Gold leaf, \$1.50 per package of 500 leaves.

Hollow-ware, coated, glazed or tinned, 3 cents per pound.

Muskets, rifles and other firearms not

All other tobacco in leaf, unmanufactured

and not stemmed, 35 cents per pound. Tobacco stems, 15 cents per pound. Tobacco manufactured, of all descriptions and stemmed tobacco, not specially enumerated or provided for in this act, 40 cents per

Snuff and snuff-flour, manufactured of Needles, for knitting or sewing machines, tobacco, ground, dry or damp and pickled, sper cent. ad valorem.

### SCHEDULE G.

Provisions. Animals, live, 20 per cent. ad valorem. Beef and pork, I cent per pound. Hams and bacon, 2 cents per pound. Meat, extract of, 20 per cent. ad valorem.

Cheese, 4 cents per pound. and substitutes there Lard, 2 cents per pound.

Wheat, 20 cents per bushel.

Rye and barley, 10 cents per bushel.

Barley, pearled, patent or hulled, 1/4 cent per pound.

Parley malt, per bushel of at records.

Barley malt, per bushel of 34 pounds, 20

Indian corn or maize, 10 cents per bushel. Oats, 10 cents per bushel. Corn meal, to cents per bushel of 48

Oat meal, 1/2 cent per pound. Rye flour, ½ cent per pound.
Wheat flour, 20 per cent. ad valorem.
Potato or corn starch, 2 cents per pound starch, 21/2 cents per pound; other

starch, 2½ cents per pound.
Rice, cleaned, 2½ cents per pound; uuleaned, 1½ cents per pound.
Paddy, 1½ cents per pound.
Rice flour and rice meal, 20 per cent. ad

Hay, \$2 per ton. Honey, 20 cents per gallon. Hops, 8 cents per pound.
Milk, preserved or condensed 20 per cent.

ad valorem. Fish :

Mackeral I cent per pound. Herrings, pickled or salted, ½ cent per

31/2 inches deep, to cents per whole box; in half-boxes, measuring not more than 5 inches long, 4 inches wide, and 1 1 inches deep, 5 cents each; in quarter-boxes, measuring 5 cents each; in quarter-boxes, measuring not more than 4½ inches long, 3½ inches wide, and 1½ inches deep, 2½ cents each; when imported in any other form, 40 per cent, ad valorem.

Fish preserved in oil, except anchovies and

rish preserved in on, except anchovies and sardines, 30 per cent. ad valorem.

Salmon and all other fish, prepared or preserved, and prepared meats of all kinds, not specially enumerated or provided for in this act, 25 per cent. ad valorem. Pickles and sauces of all kinds, not other-

wise specially enumerated or provided for in this act, 35 per cent. ad valorem. Potatoes

Potatoes, 15 cents per bushel of 60 pounds. Vegetables, in their natural state, or in salt or brine, not specially enumerated or provided for in this act, 10 per cent. ad

Vegetables, prepared or preserved, of all kinds, not otherwise provided, for, 30 per cent. ad valorem.

Chicory root, ground or unground, burnt prepared, 2 cents per pound.

inegar, 71/2 cents per gallon. The standard for vinegar shall be taken to be that strength which requires 35 grains of bicar-bonate of potash to neutralize t ounce, Troy, of vinegar, and all import duties that may by law be imposed on vinegar imported from foreign countries shall be collected according

to this standard.

Acorns and dandelion root, raw or prepared, and all other articles used or in-tended to be used as coffee, or as substitutes therefor, not specially enumerated or pro-

vided for in this act, 2 cents per pound. Chocolate, 2 cents per pound. Cocoa, prepared or manufactured, 2 cents

Currants, Zante or other, 1 cent per

Dates, plums and prunes, I cent per pound.

Figs, 2 cents per pound.
Figs, 2 cents per pound.
Oranges, in boxes of capacity not exceeding 2½ cubic feet, 25 cents per box; in one-half boxes, capacity not exceeding 1¼ cubic feet, 13 cents per half-box; in bulk, \$1.60 per 1000; in barrels, capacity not exceeding that of the 196 pounds flour barrel, 55 cents

Lemons, in boxes of capacity not exceeding 2½ cubic feet, 30 cents per box; in one-half boxes, capacity not exceeding 1½ cubic feet, 16 cents per half box; in bulk,

Lemons and oranges, in packages, not specially enumerated or provided for in this act, 20 per cent. ad valorem.

Limes and grapes, 20 per cent. ad valorem. Raisins, 2 cents per pound.
Fruits, preserved in their own juices, and

fruit juice, 20 per cent. ad valorem. Comfits, sweetmeats or fruits, preserved in sugar, spirits, syrup or molasses, not otherwise specified or provided for in this act, and jellies of all kinds, 35 per cent. ad

valorem. Almonds, 5 cents per pound; shelled, 71/2

cents per pound; filberts and walnuts of all kinds, 3 cents per pound.

Peanuts or ground beans, 1 cent per pound; shelled, 1½ cents per pound.

Nuts, of all kinds, shelled or unshelled, not pecially enumerated or provided for in this

2 cents per pound. Mustard, ground or preserved, in bottles

#### SCHEDULE H. Liquors.

Champagne and all other sparkling wines, in bottles containing each not more than quart, and more than 1 pint, \$7 per dozen bottles; containing not more than 1 pint each, and more than ½ pint, \$3.50 per dozen bottles; containing ½ pint each, or less, \$1.75 per dozen bottles; in bottles containing more than I quart each, in addition to \$7 per dozen bottles, at the rate of \$2.25 per gallon on the quantity in excess of 1-quart bottle

Still wines, in casks, 50 cents per gallon; in bottles, \$1.60 per case of 1 dozen bottles containing each not more than 1 quart and more than 1 pint, or 24 bottles containing each not more than I pint; and any excess beyond these quantities found in such bottles shall be subject to a duty of 5 cents per pint or fractional part thereof; but no separate or additional duty shall be collected on the bottles: Provided, That any wines imported containing more than 24 per cent. of alcohol shall be forfeited to the United states; Provided further. That there shall be no allow ance for breakage, leakage or damage or wines, liquors, cordials or distilled spirits.

Vermuth, the same duty as on still wines. Wines, brandy, and other spirituous liquors imported in bottles, shall be packed in packages containing not less than one dozen bottles in each package; and all such bottles, except as specially enumerated or provided for in this act, shall pay an addi-

brandy and other spirits manufactured or distilled from grain or other materials, and not specially enumerated or provided for in this act. \$2 per proof gallon: each and evergauge or wine gallon of measurement shall be counted as at least one proof gallon; and the standard for determining the proof of brandy and other spirits or liquors of any kind imported shall be the same as that be the same as that which is defined in the laws relating to internal revenue; but any brandy or other spirit uous liquors imported in casks of less capacity than 14 gallons shall be forfeited to the United States.

On all compounds or preparations of which distilled spirits are a component part of chief value, not specially enumerated or pro-vided for in this act, there shall be levied a duty not less than that imposed upon dis

Cordials, liquors, arrack, absinthe, kirsch

# NORWALK LOCK COMPANY,

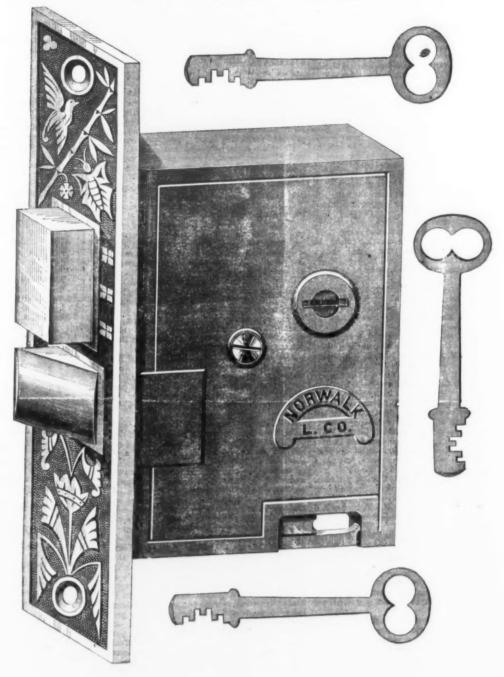
SOUTH NORWALK, CONN.

MANUFACTURERS OF

# DOOR LOCKS, KNOBS AND BUILDERS' HARDWARE.

Store Door Lock, Real Bronze, No. 4150.





Real Bronze Sash Fastener, No. 140.



Real Bronze Escutcheon to match Lock, No. 4152.



phalium mines and the work of private or or program and the work of the work o

Real Bronze Flush Sash Lift, No. 11%.



Real Bronze Draw Pull, No. 3905.



or spirits or wines imported by any names or spirits or wines imported by any names whatever, shall be subject to the highest rate of duty provided for the gennine articles respectively intended to be represented, and in no case less than \$1 per gallon.

Bay rum, or bay water, whether distilled

or compounded, \$1 per gallon of first proof, and in proportion for any greater strength than first proof.

Ale, porter and beer, in bottles or jugs of glass, stone or earthenware, 35 cents per gallon; otherwise than in bottles or jugs of glass, stone or earthenware, 20 cents per

Ginger ale or ginger beer, 20 per cent. ad valorem, but no separate or additional duty shall be collected on bottles or jugs containing the same.

#### SCHEDULE I. Cotton and Cotton Goods.

Cotton thread, yarn, warps or warp yarn, whether single or advanced beyond the condition of single by twisting two or more single yarns together, whether on beams or bundles, skeins or cops, or in any other valued at not exceeding 25 cents per pound, 10 cents per pound; valued at over 25 cents per pound, and not exceeding 40 cents per pound, 15 cents per pound; val-ued at over 40 cents per pound and not exceeding 50 cents per pound, 20 cents per pound; valued at over 50 cents per pound and not exceeding 60 cents per pound, 25 cents per pound; valued at over 60 cents per pound and not exceeding 70 cents per pound, 33 cents per pound; valued at over 70 cents per pound and not exceeding 80 cents per pound, 38 cents per pound; val-ued at over 80 cents per pound and not exceeding \$1 per pound, 48 cents per pound; valued at over \$1 per pound, 50 per cent. ad

valorem.
On all cotton cloth not bleached, dyed, On all cotton cloth not bleached, ayed, colored, stained, painted or printed, and not exceeding 100 threads to the square inch, counting the warp and filling, 2½ cents per square yard; if bleached, 3½ cents per square yard; if dyed, colored, stained, painted or printed, 4½ cents per square

On all cotton cloth not bleached, dyed, colored, stained, painted or printed, exceeding 100 and not exceeding 200 threads to the square inch, counting the warp and filling, 3 cents per square yard; if bleached, 4 cents per square yard; if dyed, colored, stained, painted or printed, 5 cents per square yard. Provided, that on all cotton cloth not exceeding 200 threads to the square inch, ing the warp and filling, not bleached, colored, stained, painted or printed, valued at over 8 cents per square yard valued at over 10 cents per square dyed, colored, stained, painted or yard: printed, valued at over 13 cents per square yard, there shall be levied, collected and paid a duty of 40 per cent. ad valorem.

On all cotton cloth exceeding 200 threads to the square inch, counting the warp and filling, not bleached, dyed, colored, stained, painted or printed, 4 cents per square yard if bleached, 5 cents per square yard; if dyed colored, stained, painted or printed, 6 cents per square yard. Provided, that on all such cotton cloths, not bleached, dyed, colored, per square yard. stained, painted or printed, valued at over to cents per square yard; bleached, valu at over 12 cents per square yard, and dyed. colored, stained, painted or printed, valued atover 15 cents per square yard, there shall be levied, collected and paid a duty of 40

on stockings, hose, half-hose, shirts and drawers and all goods made on knitting machines or frames, composed wholly of cotton and not herein otherwise provided for, 35

ond not herein otherwise provided for, 35 per cent. ad valorem.

On stockings, hose, half-hose, shirts and drawers, fashioned, narrowed or shaped wholly or in part by knitting machines or the back and and apply and apply the hand and apply composed. or knit by hand, and composed wholly of cotton, 40 per cent. ad valorem. Cotton cords, braids, gimps, galloons, we

bing, goring, suspenders, braces and all manufactures of cotton not specially enu-merated or provided for in this act, and cor-sets, of whatever material composed, 35

per cent. ad valorem.
Cotton laces, embroideries, insertings, trimmings, lace window curtains, cotton damask, hemmed handkerchiefs and cotton

valvet, 40 per cent. ad valorem.
Spool thread of cotton, 7 cents per dozen spools containing on each spool not exceeding 100 yards on each spool, for every additional 100 yards on each spool, for every additional 100 yards of thread or fractional part thereof in excess of 100 yards, 7 cents per dozen. Schedule J.

# Hemp, Jute and Flax Goods.

Flax, hackled, known as dressed line, \$40

Tow, of flax or hemp, \$10 per ton. Hemp, manila and other like substitutes for hemp, not specially enumerated or provided for in this act, \$25 per ton. Jute butts. \$5 per ton.

Jute, 20 per cent. ad valorem; sunn, sisal grass and other vegetable substances, not specially enumerated or provided for in this

act, \$15 per ton.

Brown and bleached linens, ducks, canva paddings, cot bottoms, diapers, crash, huck-abacks, handkerchiefs lawns, or other man ufactures of flax, jute or hemp, or of which flax, jute or hemp shall be the component material of chief value, not specially enu-merated or provided for in this act, 35 per

Flax, hemp and jute yarns, 35 per cent. ad valorem

Flax or linen thread, twine and pack-thread, and all manufactures of flax, or of which flax shall be the component material of chief value, not specially enumerated or provided for in this act, 40 per cent. ad

Flax or linen laces and insertings, em-broideries, or manufactures of linen, if embroidered or tamboured in the loom or other-wise, by machinery or with the needle, or other process, and not specially enumerated ovided for in this act, 30 per cent. ad

Burlaps, not exceeding 60 inches in width, of flax, jute or hemp, or of which flax, jute or hemp, or either of them, shall be the component material of chief value (except such as may be suitable for bagging for cotton), 30 per cent ad valorem.

Oilcloth foundations, or floor cloth canvas, or burlaps, exceeding 60 inches in width, made of flax, jute or hemp, or either of them, shall be the component material of chief value, 40 per cent. ad valorem.

Oilcloths for floors, stamped, painted or rinted, and on all other oilcloth (except silk ilcloth), and on waterproof cloth, not otherwise provided for, 40 per cent. ad valorem.
Gunny cloth, not bagging, valued at 10 cents or less per square yard, 3 cents per pound; valued at over 10 cents per square

yard, 4 cents per pound. Bags and bagging, and like manufactures, ot specially enumerated or provided for in this act (except bagging for cotton), com-posed wholly or in part of flax, hemp, jute, gunny cloth, gunny bags or other material, 40 per cent. ad valorem.

Bagging for cotton or other manufactures not specially enumerated or provided for in this act, suitable to the uses for which cot-ton bagging is applied, composed in whole or in part of hemp, jute, jute butts, flax, gunny-bags, gunny-cloth or other material, and valued at 7 cents or less per square yard, 1½ cents per pound; valued at over cents per square yard, 2 cents per pound. Tarred cables or cordage, 3 cents per

Untarred manila cordage, 2% cents per

All other untarred cordage, 31/2 cents per pound. Seines and seine and gilling twine, 25 per ent, ad valorem.

Sail duck, or canvas for sails, 30 per cent. ad valorem.

Russia and other sheetings, of flax or hemp, brown or white, 35 per cent. ad va-

All other manufactures of hemp or manila, or of which hemp or manila shall be a com-ponent material of chief value, not specially enumerated or provided for in this act, 35 per cent. ad valorem. Grass cloth, and other manufactures of

jute, ramp, China and sisal grass, not specially enumerated or provided for in this act, 35 per cent. ad valorem. SCHEDULE K.

#### Wool and Woolens

All wools, hair of the alpaca, goat and other like animals, shall be divided, for the purpose of fixing the duties to be charged thereon, into the three following classes:

Class I, clothing wools-that is to say merino, mestiza, metz, or metis wools, or other wools of merino blood, immediate or remote, Down clothing wools, and wools of like character with any of the preceding, in cluding such as have been heretofore usually imported into the United States from Buen Ayres, New Zealand, Australia, Cape of Good Hope, Russia, Great Britain, Canada and elsewhere, and also including all wools not hereinafter described or designated in classes 2 and 3.

Class 2, combing wools—that is to say, Leicester, Cotswold, Lincolnshire, Down combing wools, Canada long wools, or other like combing wools of English blood, and usually known by the terms herein used, and also all hair of the alpaca, goat and other

Class 3, carpet wools and other similar s—such as Donskoi, native South Ameri-Cordova, Valparaiso, native Smyrna, roolsand including all such wools of like character as have been heretofore usually imported into the United States from Turkey, Greece,

Egypt, Syria and elsewhere.

The duty on wools of the first-class which shall be imported washed shall be twice the amount of the duty to which they would be subjected if imported unwashed, and the duty on wools of all classes which shall be imported scoured shall be three times the duty to which they would be subjected if im ported unwashed. The duty upon wool of the sheep, or hair of the alpaca, goat and other like animals, which shall be imported in any other than ordinary condition, as nov and heretofore practiced, or which shall be changed in its character or condition for the purpose of evading the duty, or which shall be reduced in value by the admixture of dirt or any other foreign substance, shall be twice the duty to which it would be otherwise subject.

Wools of the first-class, the value whereof at the last port or place whence exported to the United States, excluding charges in such shall be 30 cents or less per pound, 10 per pound. Wools of the same class, cents per pound. the value whereof at the last port or place whence exported to the United States, excluding charges in such port, shall exceed 30 ind, 12 cents per pound. the second-class, and all hair of wools of the second

Flax straw, \$5 per ton.
Flax, not hackled or dressed, \$20 per ton.
Flax, hackled, known as dressed line, \$40 whence exported to the United States, excluding charges in such port, shall be cents or less per pound, 10 cents per pour cents or less per pound, 10 cents per pound; wools of the same class, the value whereof at the last port or place whence exported to the United States, excluding charges in such port, shall exceed 30 cents per pound, 12 ents per pound.

Wools of the third-class, the value whereof

at the last port or place whence exported to the United States, excluding charges in such port, shall be 12 cents or less per pound, 2½ cents per pound; wools of the same class, the value whereof at the last port or place whence exported to the United States, excluding charges in such port, shall exceed 12 cents per pound, 5 cents per pound. Wools on the skin, the same rates as other

wools, the quantity and value to be ascer-tained under such rules as the Secretary of the Treasury shall prescribe.

Woolen rags, shoddy, mungo, waste and flocks, to cents per pound. Woolen cloths, woolen shawls and all manufactures of wool of every description, made wholly or in part of enumerated or provided for in this act, val-ued at not exceeding 80 cents per pound, 35 cents per pound and 35 per cent. ad valorem; valued at above 80 cents per pound, 35 cents per pound, and in addition thereto 40 per

cent ad valorem. Flannels, blankets, hats of wool, knit all printed matter not specially enumerated goods, and all goods made on knitting-frames, balmorals, woolen and worsted yarns, and all manufactures of every description composed wholly or in part of worsted, the hair of the alpaca, goat or other animals, except such as are composed other animals, except such as are composed of the such regulations as the series. So per cent. and valorem.

Salank books, bound or unbound, and blank books for press copying, 20 per cent. and valorem.

Valorem.

Fur, articles made of, and not specially tary of the Treasury shall prescribe, that enumerated or provided for in this act, 30 per cent. and valorem.

in part of wool, not specially enumerated or provided for in this act, valued at not exceeding 30 cents per pound, 10 cents per pound; valued at above 30 cents per pound, and not exceeding 40 cents per pound, 12 cents per pound; valued at above 40 cents per pound, and not exceeding 60 cents per pound, 15 cents per pound; valued at above 60 cents per pound, and not exceeding 80 cents per pound, and not exceeding 80 cents per pound. cents per pound, 24 cents per pound; and in addition thereto, upon all the above-named articles, 35 per cent. ad valorem; valued at above 80 cents per pound, 35 cents per pound; and in addition thereto 40 per cent. Bunting, 10 cents per square yard, and in

Bunting, 10 cents per square yard, and addition thereto 35 per cent. ad valorem.

Women's and children's dress goods, coat linings, Italian cloths, and goods of like description, composed in part of wool, worsted, the hair of the alpaca, goat, or other animals, the hair of the alpaca, goat, or other animals, valued at not exceeding 20 cents per square yard, 5 cents per square yard, and in addition thereto 35 per cent. ad valorem; valued at above 20 cents per square yard, 7 cents per square yard and 40 per cent. ad valorem; if composed wholly of wool, worsted, the hair of the alpaca, goat, or other squares. worsted, the nair of the alpaca, goat, or other animals, or of a mixture of them, g cents per square yard and 40 per cent ad valorem, but all such goods with selvedges, made wholly or in part of other materials, or with threads of other materials introduced for the purpose of charging the close. duced for the purpose of changing the class ification, shall be dutiable at 9 cents per ification, shall be dutiable at 9 cents per square yard and 40 per cent ad valorem: Provided, That all such goods weighing over 4 ounces per square yard shall pay a duty of 35 cents per pound and 40 per cent. ad valorem.

Clothing, ready-made, and wearing ap parel of every description, not specially enumerated or provided for in this act, and balmoral skirts and skirting, and goods of similar description, or used for like purposes, composed wholly or in part of wool, worsted the hair of the alpaca goat or other animals. made up or manufactured wholly or in par by the tailor, seamstress or manufacturer except knit goods, 40 cents per pound, and in addition thereto 35 per cent. ad valorem.

Cloaks, dolmans, jackets, talmas, ulsters or other outside garments for ladies' and children's apparel and goods of similar de-scription, or used for like purposes, com-posed wholly or in part of wool, worsted, the hair of the altern governments. the hair of the alpaca goat or other animals, made up or manufactured wholly or in part tailor, seamstress or manufacturer knit goods), 45 cents per pound, and in addition thereto 40 per cent. ad

Webbings, gorings, suspenders, braces, beltings, bindings, braids, galloons, fringes, gimps, cords, cords and tassels, dress trimnings, head-nets, buttons or barrel buttons or buttons of other forms, for tassels of ornaments, wrought by hand or braided by machinery, made of wool, worsted, the hair of the alpaca goat or other animals, or of which wool, worsted, the hair of the alpaca goat or other animals is a component ma-terial, 30 cents per pound, and in addition ereto 50 per cent. ad valorem

Aubusson, Axminster and chenille carpets and carpets woven whole for rooms, 45 cents per square yard, and in addition thereto 30 per cent. ad valorem. Saxony, Wilton and Tournay velvet car-

ets, 45 cents per square yard, and in addi-on thereto 30 per cent. ad valorem.

Brussels carpets, 30 cents per square yard, and in addition thereto 30 per cent. ad Patent velvet and tapestry velvet carpets

printed on the warp or otherwise, 25 cents per square yard, and in addition thereto 30 r cent. ad valorem.

per cent. ad valorem.

Tapestry Brussels carpets, printed on the
warp or otherwise, 20 cents per square yard,
and in addition thereto 30 per cent. ad

Treble ingrain, three-ply and worsted chain Venetian carpets, 12 cents per square yard, and in addition thereto 30 per cent. ad Yara Venetian and two-ply ingrain car-

ets, 8 cents per square yard, and in addition hereto 30 per cent. ad valorem. Druggets and bockings, printed, colored or otherwise, 15 cents per square yard, and in addition thereto 30 per cent ad va-

Hemp or jute carpeting, 6 cents per square

Carpets and carpetings of wool, flax or cotton, or parts of either or other material, not otherwise herein specified, 40 per cent. ad valorem; and mats, rugs, screens, covers, hassocks, bedsides and other portions of carpets or carpetings shall be a rate of duty herein imposed on carpets or carpeting of like character or description; and the duty on all other mats not exclusively of vegetable material, screens, has-socks and rugs shall be 40 per cent. ad va-

Endless belts or felts for paper or machines, 20 cents per pound and 30 per cent. ad valorem.

#### SCHEDULE L. Silk and Silk Goods.

Silk, partially manufactured from cocoons or from waste silk, and not further advanced or manufactured than carded or combed silk, 50 cents per pound.

Thrown silk, in gum, not more advanced

Thrown silk, in guin, not more advanced than singles, tram, organzine, sewing silk, twist, floss, in the guin and spun silk, silk threads or yarns of every description, puri-fied or dyed, 30 per cent. ad valorem.

On lastings, mohair cloth, silk twist, or other manufactures of cloth, woven or made in patterns of such size, shape or form, or cut in such manner as to be fit for buttons exclusively, to per cent. ad valorem.

All goods, wares and merchandise not

specially enumerated or provided for in this act, made of silk, or of which silk is the component material of chief value, 50 per ad valorem. cent. ad valorem.

### SCHEDULE M.

Books, Papers, &c.

and charts, 25 per cent. ad valorem.

Blank books, bound or unbound, and blank

Paper, sized or glued, suitable only for Paper, sized or glued, suitable only for printing paper, 20 per cent. ad valorem.

Printing paper, unsized, used for books and newspapers exclusively, 15 per cent. ad valorem.

Grease, all, not specially enumerated or provided for in this act. 10 per cent. ad

Paper, manufactures of, or of which paper is a component material, not specially enumerated or provided for in this act, 15 per per ton. cent. ad valorem.

Sheathing paper, 10 per cent. ad valorem. Paper boxes and all other fancy boxes, 35

Paper envelopes, 25 per cent. ad valorem.
Paper envelopes, 25 per cent. ad valorem.
Paper-hangings and paper for screens or fire-boards, paper antiquarian, demy, drawing, elephant, foolscap, imperial, letter, note and all other paper not specially enumerated or provided for in this act, 25 per cent. ad

valorem.
Pulp, dried, for paper makers' use, 10 per cent. ad valorem.

#### SCHEDULE N Sundries.

Alabaster and spar statuary and orna-ents, 10 per cent. ad valorem. Baskets and all other articles composed of

grass, osier, palm leaf, whalebone, or willow, or straw, not specially enumerated or proided for in this act, 30 per cent. ad valorem. Beads, and bead ornaments of all kinds, scept amber, 50 per cent. ad valorem. Blacking of all kinds, 25 per cent. ad

Bladders, manufactures of, 25 per cent. ad valorem

Bone, horn, ivory or vegetable ivory, all manufactures of, not specially enumerated or provided for in this act, 30 per cent. ad alorem.

Bonnets, hats and hoods for men, women and children, composed af chip, grass, palm eaf, willow or straw, or any other vegetable substance, hair, whalebone or other material, not specially enumerated or provided for in this act, 30 per cent. ad valorem.

Bouillons, or cannetille, metal threads, filé gespinst, 25 per cent, ad valorem Bristles, 15 cents per pound. Brooms of all kinds, 25 per cent. ad

valorem. Brushes of all kinds, 30 per cent. ad

Bulbs and bulbous roots, not medicinal d not specially enumerated or provided for in this act, 20 per cent. ad valorem.

Burr stones, manufactured or bound up ato mill stones, 20 per cent. ad valorem. Buttons and button-molds, not specially enumerated or provided for in this act, not including brass, gilt or silk buttons, 25 per cent, ad valoren

Candles and tapers of all kinds, 20 per ent. ad valorem. Canes and sticks for walking, finished, 35 ad valorem; if unfinished, 20 per

ent. ad valorem. Card cases, pocket-books, shell boxes and all similar articles, of whatever material composed, and by whatever name known, ot specially enumerated or provided for in

this act, 35 per cent. ad valorem.

Card clothing, 25 cents per square foot; when manufactured from tempered steel wire, 45 cents per square foot.

Carriages, and parts of, not specially enumerated or provided for in this act, 35

per cent. ad valorem.

thereof, 10 per cent. ad valorem Clocks, and parts of clocks, 30 per cent. ad this act, and skins of moroe

valorem. Coach and harness furniture of all kinds. saddlery, coach and harness hardware, silver-plated, brass, brass-plated or covered,

common, tinned, burnished or japanned, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

Coal-slack or culm, such as will pass through a ½-inch screen, 30 cents per ton of 28 bushels, 80 pounds to the bushel.

Coal, bituminous and shale, 75 cents per on of 28 bushels, 80 pounds to the bushel. A drawback of 75 cents per ton shall be allowed on all bituminous coal imported into the United States which is afterward used for fuel on board of vessels propelled by steam which are engaged in the coasting trade of the United States, or in the trade with foreign countries, to be allowed and paid under such regulations as the Secretary

of the Treasury shall prescribe.

Coke, 20 per cent. ad valorem.

Combs of all kinds, 30 per cent. ad val-

et, 10 per cent, ad valorem Coral, cut, manufactured or set, 25 per at used in the laws now in force imposing duties on foreign importations, shall be understood to include professional productions of the control o ent, ad valorem.

Crayons of all kinds, 20 per cent. ad

Dice, draughts, chess-men, chess-balls and billiard and bagatelle balls, of ivory or

bone, 50 per cent. ad valorem.

Dolls and toys, 35 per cent. ad valorem.

Emery-grains and emery, manufactured, ground, pulverized or refined, I cent per

Epaulets, galloons, laces, knots, stars, tassels and wings, of gold, silver or other metal, 25 per cent. ad valorem.

Fans of all kinds, except common palmleaf fans, of whatever material composed,

35 per cent. ad valorem Feathers of all kinds, crude or not dressed, colored or manufactured, 25 per

cent. ad valorem; when dressed colored or 20 per cent. ad valorem. manufactured, including dressed and finished birds for millinery ornaments, and artificial and ornamental feathers and flowers or parts thereof, of whatever material com-posed, for millinery use, not specially enu-merated or provided for in this act, 50 per cent. ad valorem.

Finishing powder, 20 per cent. ad val-Fire crackers of all kinds, 100 per cent.

Floor matting and floor mats exclusively vegetable substances, 20 per cent. ad valorem.

Friction or lucifer matches of all descrip-

Books, pamphlets, bound or unbound, and all printed matter not specially enumerated or provided for in this act, engravings, bound or unbound, etchings, illustrated books, maps provided for in this act, 30 per cent. ad valorem.

Gloves, kid or leather, of all descriptions

aloren

Grindstones, finished or anfinished, \$1.75

Gunpowder, and all explosive substances used for mining, blasting, artillery or sport-ing purposes, when valued at 20 cents or less per pound, 6 cents per pound; valued above 20 cents per pound, 10 cents per

Gun wads of all descriptions, 35 per cent ad valorem.

Gutta percha, manufactured, and all rticles of, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

Hair, human, bracelets, braids, chains,
rings, curls and ringlets composed of hair of which hair is the component material of chief value, 35 per cent. ad valorem.

Curled hair, except of hogs, used for beds or mattresses, 25 per cent. ad valorem. Human hair, raw, uncleaned and not drawn, 20 per cent. ad valorem; if clean or drawn, but not manufactured, 30 per cent. ad valorem; when manufactured, 35 per

cent. ad valorem. Hair cloth, known as "crinoline cloth," and all other manufactures of hair not specially enumerated or provided for in this act, 30 per cent. ad valorem.

Hair cloth, known as "hair seating," 30 Hair pencils, 30 per cent. ad valorem.
Hats, and so forth, materials for: Braids,

plaits, flats. laces, trimmings, tissues, willow sheets and squares, used for making or ornamenting hats, bonnets and hoods composed of straw, chip, grass, palm-leaf, willow, hair, whalebone or any other substance or material not specially enumerated or provided for in this act, 20 per cent ad valorem.

Hat bodies, of cotton, 35 per cent. ad

alorem.

Hatters' furs, not on the skin, and dressed furs on the skin, 20 per cent. ad valorem. Hatters' plush, composed of silk or of silk

and cotton, 25 per cent. ad valorem.

Hemp seed and rape seed, and other oil seeds of like character, other than linseed or flaxseed, ¼ cent per pound. India-rubber fabrics, com

Haxseed, % cent per pound.

India-rubber fabrics, composed wholly or in part of india rubber, not specially enumerated or provided for in this act, 30 per cent. ad valorem.

Articles composed of india rubber, not

pecially enumerated or provided for in this act, 25 per cent. ad valorem. India-rubber boots and shoes, 25 per cent.

ad valorem.

Inks of all kinds and ink powders, 30 per ent, ad valorem.

Japanned ware of all kinds, not specially

per cent. ad valorem.

Jet, manufactures and imitations of, 24 per cent. ad valorem.

Jawelry of all kinds, 25 per cent. ad valorem. Leather, bend or belting leather, and Spanish or other sole leather, and leather not specially enumerated or provided for in

15 per cent. ad valorem. Calfskins, tanned, or tanned and dressed, cent. ad valorem.

Chronometers, box or ship's, and parts and skins dressed and finished, of all kinds, not specially enumerated or provided for in o, finished. per cent. ad valorem.

Skins for morocco, tanned, but unfinished, 10 per cent. ad valorem.
All manufactures and articles of leather,

or of which leather shall be a component part, not specially enumerated or provided for in this act, 30 per cent. ad valorem. Lime, 10 per cent. ad valorem. Garden seeds, except seed of the sugar-ceet, 20 per cent. ad valorem. d or flaxseed, 20 cents per bushel of

56 pounds; but no drawback shall be allowed oilcake made from imported seed. Murble of all kinds, in block, rough or squared, 65 cents per cubic foot; veined marble, sawed, dressed, or otherwise, including marble slabs and marble paving tiles, \$1.10 per cubic foot.

\$1.10 per cubic foot.

All manufactures of marble not specially enumerated or provided for in this act, 50 per cent. ad valorem.

Musical instruments of all kinds, 25 per Combs of all kinds, 30 per cent. ad val-em Paintings, in oil or water colors, and stat-Compositions of glass or paste, when not t, 10 per cent. ad valorem. But the term "statuary,"

tions of statuary or of a sculp

dons of statuary or of a sculptor only.

Osier or willow, prepared for basketmakers' use, 25 per cent. ad valorem.

Papier-maché, manufactures, articles and
wares of, 30 per cent. ad valorem.

Pencils of wood, filled with lead or other
material, and pencils of lead, 50 cents per
gross and 30 per cent. ad valorem; pencilleads, not in wood to per cent ad valorem; ads, not in wood, 10 per cent. ad valorem. Percussion caps, 40 per cent. ad valorem. Philosophical apparatus and instruments,

per cent. ad valorem. pes, pipe-bowls and all smokers' articles whatsoever, not specially enumerated or provided for in this act, 70 per cent. ad val-orem; all common pipes of clay, 35 per cent.

ad valorem. Plaster of Paris, when ground or calcined,

o per cent. ad valorem.
Playing cards, 100 per cent. ad valorem.
Polishing powders of every description
whatever name known, including Frankort black and Berlin, Chinese, fig and wash

blue, 20 per cent. ad valorem.

Precious stones of all kinds, 10 per cent. ad valorem.

Rags, of whatever material composed and not specially enumerated or provided for in

this act, 10 per cent. ad valorem.
Rattans and 1eeds, manufactured but not made up into completed articles, 10 per cent.

Salt, in bags, sacks, barrels or other packages, 12 cents per 100 pounds; in bulk, 8 cents per 100 pounds: Provided, That exporters of meats, whether packed or smoked, which have been cured in the United States with imported salt, shall, upon satisfactory proof, under such regulations as the Secre-

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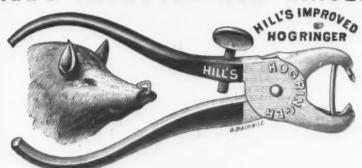
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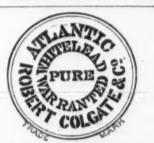
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 Lime
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 Soda
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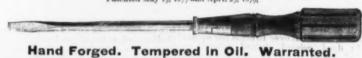
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Borers; U. S. Tool Co., Screw Drivers,
Acme Can Oreners and Landles. Acme Can Openers and Landles,

ury the duties paid on the salt so used in curing such exported meats, in amounts not less than \$100: And provided further, That imported salt in bond may be used in curing fish taken by vessels licensed to engage in the fisheries, and in curing fish on the shores of the navigable waters of the United States, under such regulations as the Secretary of the Treasury shall prescribe, and upon proof that the salt has been used for either of the purposes stated in this proviso, the duties on the same shall be remitted.

Scagliola and composition tops for tables, or for other articles of furniture, 35 per cent. ad valorem.

Bealing wax, 20 per cent. ad valorem. Shells, whole or parts of, manufactured, of every description, not specially enumerated or provided for in this act, 25 per cent.

Stones, unmanufactured or undressed. freestone, granite, sandstone and all building or monumental stone, except marble, not specially enumerated or provided for in this act, \$1 per ton, and upon stones as above, hewn, dressed or polished, 20 per cent.

and valorem.
Strings: All strings of catgut or any other like material other than strings for musical

instruments, 25 per cent. ad valorem.
Tallow, I cent per pound.
Teeth, manufactured, 20 per cent. ad

Umbrella and parasol ribs, and stretcher frames, tips, runners, handles or other parts thereof, when made in whole or chief part of iron, steel or any other metal, 40 per cent. ad valorem; umbrellas, parasols and shades, when covered with silk or alpaca, 50 per cent. ad valorem; all other umbrellas, 40

per cent. ad valorem.
Umbrellas, parasols and sunshades, frames and sticks for, finished or unfinished, not specially enumerated or provided for in the act, 30 per cent. ad valorem. Waste, all not specially enumerated or

Wasto, all not specially enumerated or provided for in this act, 10 per cent. ad valorem.

Watches, watch cases, watch movements parts of watches and watch materials, not specially enumerated or provided for in this

specially enumerated or provided for in this act, 25 per cent. ad valorem.

Webbing, composed of cotton, flax or any other materials, not specially enumerated or provided for in this act, 35 per cent. ad valorem.

THE FREE LIST.

Sec. 2503.—The following articles, when imported, shall be exempt from duty:

Chemicals.

Albumen, in any form or condition; lacta-

Aconite. Ambergris.

Anatto, roncou, rocou or orleans, and all extracts of. Balm of Gilead.

Blood, dried.

Bones, crude, not manufactured, burned, calcined, ground or steamed. Bone dust or bone ash for manufacture of phosphate and fertilizers. Carbon, animal, fit for fertilizing only.

Guano, manures and all substances expressly used for manure.

Musk, crude, in natural pod. Civit, crude.

Cochineal. Dyeing or tanning: Articles in a crude state used in dyeing or tanning, not specially enumerated or provided for in this act.

Fish skins.

Hide-cuttings, raw, with or without hair, and all glue stock.

Horns and parts of horns, unmanufactured, and horn strips and tips.

Ipecac.
Fish sounds or fish bladders. Leather, old scraps. Leeches.

Rennets, raw or prepared. Argal or argol, or crude tartar.

Barks, cinchona, or other barks used in the manufacture of quinia.

Brazil paste. Camphor, crude. Cassia, cassia buds, cassia vera, unground.

Charcoal. Cinnamon and chips of, unground. Cloves and clove stems, unground.

Cocculus indicus. Cudbear. Curry and curry powder.

Cutch Divi-divi. Dragon's blood.

Gambier. Ginger root, unground. Iodine, crude.

Jalap.

Kelp.

Lac dye, crude, seed, button, stick and the Treasury may prescribe.

Asphaltum and bitumen, crude. shell. Lemon juice and lime juice.

Licorice root, unground.
Litmus, prepared or not prepared. Madder and munjeet or Indian madder, ground or prepared, and extracts of.

Myrobolan. Orchil or orchil liquid.

Nutmegs.
Nux vomica.
Ottar of roses. Saccalline Oils Almond.

Amber, crude and rectified. Ambergris. Anise, or anise seed.

Aniline, crude. Aspic or spike lavender. Bergamot. Carraway Cassia and cinnamon.

Cedrat. Chamomile Citronella or lemon grass. Civet.

Fennel. Jasmine or jasamine. Juglandium. Juniper. Lavender.

Lemon.

Mace. Neroli or orange flower.

Orange. Palm and cocoanut.

Poppy. Resemany or anthoss.

Sesame or sesamum seed or bene. Thyme or origanum, red or white;

Pepper, unground, of all kinds. Pimento, unground. Saffron and safflower, and extract of, and affron cake.

Selep or saloun Storax or styrax. Turmeric. Turpentine, Venice

Valonia. Vegetable and mineral wax.

Wood ashes and lye of, and beet-root

Acids used for medicinal, chemical or manufacturing purposes, not specially enumerated or provided for in this act.

Alizarine, natural or artificial. Agates, unmanufactured. Apatite.

Asbestos, unmanufactured. Antimony ore, crude sulphide of. Arsenic, sulphide of, or orpiment.

Arseniate of aniline.

Baryta, carbonate or witherite. Aniline salts or black salts and black tares.

Calamine.

Cobalt, as metallic arsenic. Chalk and cliff-stone, unmanufactured.

Feldspar. Cryolite or kryolith.

Kyanite or cyanite, and kainite. Lime, citrate of. Lime, chloride of, or bleaching powder. Magnesium

Magnesite, or native mineral carbonate of nagnesia. Manganese, oxide and ore of Mineral waters, all not artificial.

Osmium. Palladium. Paraffine.

Phosphates, crudo or native, for fertilizing purposes.
Potash, muriate of.

Plaster of Paris or sulphate of lime, un-Quinia, sulphate of, salts of, and cincho-

Soda, nitrate of, or cubic nitrate. Strontia, oxide of, and proto-oxide of strontian, and strontianite or mineral car-

bonate of strontia. Sulphur or brimstone, not specially enu-merated or provided for in this act.

Sulphur, lac or precipitated. Tripoli. Uranium. oxide of, verdigris or subacetate

of copper.

of copper.
Drugs, barks, beans, berries, balsams, buds, bulbs, and bulbous roots and excrescences, such as nutgalls, fruits, flowers, dried fibers; grains, gums and gum resins; herbs, leaves, lichens, mosses, nuts, roots and stems, spices, vegetables, seeds, aromatic and seeds of morbid growth; weeds, woods used expressly for dyeing and dried insects; any of the foregoing of which are not edible and are in a crude state, and not advanced in value or condition by refining advanced in value or condition by refining or grinding, or by other process of manufacture, and not specially enumerated or provided for in this act.

Vaccine virus.
Crude minerals, not advanced in value or condition by refining or grinding, or by other process of manufacture, not specially enu-merated or provided for in this act.

Sundries. Aluminium.

Aluminum.

Amber beads and gum.

Animals brought into the United States temporarily, and for a period not exceeding six months, for the purpose of exhibition or competition for prizes offered by any agri-cultural or racing association; but a bond shall be first given in accordance with the

regulations.

Animals specially imported for breeding purposes shall be admitted free upon proof thereof satisfactory to the Secretary of the Treasury, and under such regulations as he may prescribe; and teams of animals, including their harness and tackle, and the vehicles or wagons actually owned by perons emigrating from foreign countrie the United States with their families and in actual use for the purpose of such emigration, shall also be admitted free of duty, under such regulations as the Secretary of

Arrowroot.
Articles imported for the use of the United

than cut into suitable lengths for walking sticks or canes, or for sticks for umbrellas, parasols or sunshades

parasols or sunshades.

Bamboo, unmanufactured.

Barrels of American manufacture, exported filled with domestic petroleum and returned empty, under such regulations as the Secretary of the Treasury may prescribe and without requiring the filing of a declaration at time of export of intent to return the same entity.

Hop roots for cultivation.

Hop poles.

India-rubber, crude, and milk of.
India-rubber, crude, and milk of.
India-rubber crude than cut in o suitable lengths for the manufactures into which they are intended to be converted. same empty.

Articles the growth, produce and manufacture of the United States, when returned in the same condition as exported. Casks, barrels, carboys, bags and other vessels of American manufacture, exported filled with American manufacture, exported filled with American products, or exported empty and returned filled with foreign products, includ-ing shooks when returned as barrels or boxes, but proof of the identity of such arti-cles shall be made under regulations to be prescribed by the Secretary of the Treasury; and if any of such articles are subject to in-

Bed feathers and downs.
Bells, broken, and bell metal broken and fit only to be remanufactured.

Birds, stuffed. Birds and land and water fowls.

Bismuth. Bladders, crude, and all integuments of animals not specially enumerated or provided for in this act.

Bologne sausages. Bolting cloths,

Books, engravings, bound or unbound, etchings, maps and charts, which shall have been printed and manufactured more than

20 years at the date of importation.

Books, maps and charts imported by authority or for use of the United States, or for the use of the Library of Congress; but the duty shall not have been included in the

contract of price paid.

Books, maps and charts specially imported, not more than two copies in any one invoice, in good faith, for the use of any society in in good faith, for the use of any society in-corporated or established for philosophical, literary or religious purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school or seminary of learning in the United States.

Books, professional, of persons arriving in

Books, brotessional, or persons at the United States.

Books, household effects, or libraries or parts of libraries in use, of persons or families from foreign countries, if used abroad by them not less than one year, and not intended for any other person or persons, nor for sale. Breccia, in blocks or slabs.

Brazil pebbles, for spectacles, and pebbles dying abroad.

r spectacles, rough. Bullion, gold and silver.

Burgundy pitch.
Burr stone, in blocks, rough or unmanufactured, and not bound up in mill-stones. Cabinets of coins, medals and all other coltions of artiquities. Castor or castoreum. Catgut strings, or gut-cord, for musical

Catgut, or whip-gut, unmanufactured. Coal, anthracite. Coal, stores of American vessels, but none

shall be unloaded. Cobalt, ore of. Cocoa, or cacao, crude and fiber, leaves and shells of.

Coins, gold, silver and copper. Coir and coir yarn.
Copper, old, taken from the bottom of American vessels compelled by marine dis-aster to repair in foreign ports. Copper, when imported for the United

States Mint. Coral, marine, unmanufactured. Cork wood or cork bark, unmanufactured. Cotton.

Curling stones or quoits. Cuttle-fish bone. Diamonds, rough or uncut, including glaziers' diamonds.

Diamond dust or bort. Dyeing or tanning articles, in a crude state, used in dyeing or tanning, not specially enumerated or provided for in this act.

Esparto or Spanish grass and other grasses, nd pulp of, for the manufacture of paper. Emery ore.

Fashion plates, engraved on steel or on ood, colored or plain. Felt, adhesive, for sheathing vessels. Fibrin, in all forms.

Fans, common palm leaf.

lish, fresh, for immediate consumption. Fish for bait.

Flint, flints and ground flint-stones. Fruit plants, tropical and semi-tropical, for the purpose of propagation or cultiva-

Fruits, green, ripe, or dried, not specially numerated or provided for in this act. Furs, undressed. Fur skins of all kinds, not dressed in any

Glass, broken pieces, and old glass which cannot be cut for use, and fit only to be remanufactured.

Glass plate, or disks, unwrought, for use a the manufacture of optical instruments. Goat skins, raw. Gold beaters' molds and gold beaters'

Gold size Grease, for use as soap stock only, not decially enumerated or provided for.
Gunny bags, and gunny cloth, old or Gunny bags, and gunny cloth, refuse, fit only for remanufacturing.

Gut and worm gut, manufactured or un-

anufactured. Guts, salted. Gutta-percha, crude and hair of all kinds cleaned or uncleaned, drawn or undrawn,

but unmanufactured, not specially enumerated or provided for in this act; of hogs, curled for beds and mattresses, and not fit

Arrowroot.

Articles imported for the use of the United States, provided that the price of the same did not include the duty.

Bamboo reeds, no further manufactured raw, without the wool, unmanufactured, sses' skins, raw or unmanufactured. Henes and whetstones

Hop roots for cultivation.

Joss-stick, or joss-light.

Ivory and vegetable ivory, unmanufac-Jet, unmanufactured.

Junk, old. ava, unmanufactured. Life boats and life-saving apparatus, spe cially imported by societies incorporated or established to encourage the saving of human

Lithographic stones, not engraved.

Logs and round, unmanufactured timber, ternal tax at the time of exportation, such not specially conumerated or provided for in tax shall be proved to have paid been before exportation and not refunded.

Maccaroni and vermicelli. Maccaroni and vermicelli.

Manuscripts Marrow, crude. Marsh-mallows.
Medals, of gold, silver or copper.
Meerschaum, crude or raw.
Mica and mica waste.
Models of inventions and other improve-

Models of inventions and other improvements in the arts, but no article or articles shall be deemed a model or improvements which can be fitted for use.

Moss, sea weeds and all other vegetable substances used for beds and mattresses.

Newspapers and periodicals. Nuts, cocoa, and Brazil or cream.

Oil cake.

Oil, spermaceti, whale and other fish oils of American fisheries, and all other articles the produce of such fisheries.

Olives, green or prepared. Orange and lemon peel, not preserved cardied, or otherwise prepared. Ores, of gold and silver.

Palm nuts and palm-nut kernels Paper stock, crude, of every description, cluding all grasses, tibers, rags of all kinds including all grasses, fibers, rags of all kinds other than wool, waste, shavings, clippings, old paper, rope ends, waste rope, waste lagging, gunny bags, gunny cloth, old or refuse, to be used in making and fit only to be convorted into paper and unfit for any other minufacture, and cotton waste, whether for paper stock or other purposes.

Parchament Parchment.

Pearl, mother of. Personal and household effects not mer-chandise, of citizens of the United States

wter and britannia metal, old, and fit

only to be remanufactured. Philosophical and scientific apparatus, instruments and preparations, statuary, casts of marble, bronze, alabaster or plaster of Paris, paintings, drawings and etchings, specially imported in good faith for the use of any society or institution incorporated or established for religious, philosophical, educational, scientific or literary purposes, or

encouragement of the fine arts, and not intended for sale. Plants, trees, shrubs and vines of all kinds not otherwise provided for, and seeds of all kinds, except medicinal seeds not specially

enumerated or provided for in this act.
Plants, trees, shrubs, roots, seed-cane and seeds imported by the Department of Agriculture or the United States Botanical Gar-Platina, unmanufactured.

Platinum, unmanufactured, and vases, retorts and other apparatus, vessels and parts thereof, for chemical uses. Plumbago. Polishing stones. Pulu.

Pumice and pumice stone.

Quills, prepared or unprepared. Railroad ties of wood. Raircad hes of wood.
Rattans and reeds, unmanufactured.
Regalia and gems, statues, statuary and specimens of sculpture, where specially imported in good faith for the use of any society incorporated or established for philosophical, literary or religious purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school, seminary of learning or public library in the United States.

Root flour. Rotten stone. Sago, sago crude and sago flour. Saurkraut.

Sausage skins. Seaweed, not otherwise provided for. Seed of the sugar-beet.

Shells of every description, not manufac-Shingle-bolts and stave-bolts, provided that heading-bolts shall be held and con-strued to be included under the term stave-

Shrimps or other shell fish.
Silk, raw, or as reeled from the cocoon,
but not doubled, twisted or advanced in

manufacture in any, way.
Silk cocoons and silk waste.

Specimens of natural history, botany and mineralogy, when imported for cabinets or as objects of taste or science, and not fors ale. Spurs and stilts, used in the manufacture

of earthen, stone or crockery ware. Straw, unmanufactured. Sugar of mill Sweepings of silver and gold. Tamarinds. Tapioca, cassava or cassada.

Tea plants. Teeth, unmanufactured. Terra alba, aluminous.

Tin ore, bars, blocks or pigs, grain or granulated.

Tonquin, Tonqua or Tonka beans.
Tortoise and other shells, unmanufac-Turtles.
Types, old, and it only to be remanufac-

tured. Umbrella sticks, crude, to wit: all partridge, hair wood, pimento, crange, myrtle and all other sticks and canes in the rough, or no further manufactured than cut into lengths suitable for umbrella, parasol, or sunshade sticks or walking-canes.

Wafers, unmedicated. Wafers, unmedicated.

Wearing apparel in actual use and other

Personal effects (not merchandise), professional books, implements, instruments and scrap of similar quality, all to be bright, tools of trade, occupation or employment of

persons arriving in the United States. It this exemption shall not be construed include machinery or other articles imported for use in any manufacturing establishment, or for sale.

Whalebone, unmanufactured.
Woods, poplar or other woods, for the manufacture of paper.

Woods, namely, cedar, lignunavitæ, lancewood, ebony, box, granadilla, mahogany, wood, ebony, box, granadilla, mahogany, unlike the same of known quality.

No. 3.—Gun, pistol and machinery scrap, and the solid waste in the manufacture of the same, from Swedish decarbonized, Bessemer, open-hearth or Siemens-Martin steel of known quality.

No. 4.—Locomotive and ear leaf springs of the same, from Swedish decarbonized, Bessemer, open-hearth or Siemens-Martin steel of known quality.

rosewood, satinwood and all cabinet woods.

Works of art, painting, statuary, fountains and other works of art, the production of American artists. But the fact of such production must be verified by the certificate of a consul or a minister of the United States indorsed upon the written declaration of the artist; nantings, status, fourtains. States indersed upon the written declaration of the artist; paintings, statuary, fountains and other works of art, imported expressly for presentation to national institutions or to any State, or to any municipal corporation or religious corporation or so

Zaffer.

Goods in Bond. Sec. 10. That all imported goods, wares and merchandise which may be in the pub-lic stores or bonded warehouses on the day and year when this act shall go into effect, except as otherwise provided in this act, shall be subjected to no other duty upon the entry thereof for consumption than if the same were imported respectively after that day; and all goods, wares and merchandise remaining in bonded warehouses on the day and year this act shall take effect, and upor which the duties shall have been paid, shall be entitled to a refund of the difference between the amount of duties paid and the amount of duties said goods, wares and merchardise would be subject to if the same were imported respectively after that date.

#### Classification of Scrap Iron.

March 2, 1881.

To the Edilor of The Iron Age .- SIR : While an effort is now made by means of the "Exchanges" to classify scrap iron and steel, it is desirable to cover the entire ground. If suggestions are in order, herewith find contribution by New England.

WROUGHT IRON. WROTGHT IRON.

Extra.—Ends of bars and imperfect forgings from imported and approved brands of Norway or Swedish Iron, and the heavy clippings, punchings and waste from the manufactures of same. A specific and careful description of shapes and brands to be furnished.

furnished.
No. 1—Shall consist of any heavy wrought iron, such as horseshoes, blacksmith's heavy croppings and scrap, boilermaker's scrap, heavy rods, boits, spikes, shafting, boiler iron and the like, meaning thereby to distinguish and describe a class of scrap selected, sheared and cut to length suitable selected, sheared and cut to length suitable for piling in the ordinary and usual methods practiced by the best mills. It must be free from any rods or plates less than \(\frac{3}{2}\) inch thick, round or square, and of not unusual or irregular shapes or sizes, and all such must be uniformly sheared and cut to lengths not exceeding a feet, also must be excluded. not exceeding 2 feet; also must be excluded rails and joints, rail ends, nails, anvils, edge tools, hoes, shovels, locks, steam, gas and other pipe, flues, boxes, stove-pipe, sheet iron, hoops, ties, wire, skeleton and washer iron, the waste or trimmings of the same, and like light iron; also any No. 2 scrap; also from all classes of wrought iron are excluded east, malleable, galvanized, tinned or coppered iron, zinc, steel, brass or other foreign substance, and burnt and excessively rusty iron.

No. 2—Shall consist of the small but solid

scrap or wasto usually produced by black-smiths, forgers and manufacturers of nuts and bolts, nails, rivets, scraws, butts, hinges, drop forgings, &c., such as ends of small rods, imperfects, punchings, clippings and trimmings of same, and like solid scrap requiring neither assorting nor shearing, meaning thereby to distinguish a class which was be desireded "" to be may be designated "solid scrap," to be shoveled and not suitable for piling, such scrap in all cases to be screened and free

shrued to be included under the term stavebolts.

Hand'e-bolts.

Shrimps or other shell fish.

Silk, raw, or as reeled from the cocon,
but not doubled, twisted or advanced in
manufacture in any, way.

Silk cocoons and silk waste.

Silk worms' eggs.

Skeletons and other preparations of anatbony.

Skins, dried, salted or pickled.

Snails.

Soap stocks.

Sodium.

Sparteree, for making or ornamenting
mats.

Specimens of natural history, botany and
mineralogy, when imported for cabinets or
as objects of taste or science, and not fors ale.

Spuns.

Spurs and stilts, used in the manufacture

shoveled and not suitable for binney, seen and cases to be screened and free
from scale, dirt and any impurity. So far
as the same apply, the exclusions from No. 1
are applicable to this class.

No. 3—Shall consist of anvils, o'd rails
and joints, rail ends and all such unwieldy
pieces as anchors, ships'-knees and braces,
armor plates, uncut boiler sheets, crank and
heavy shafts and shifting, beams, tees,
armor plates, uncut boiler sheets, crank and
heavy shafts and shafting, beams, tees,
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armor plates, uncut boiler sheets, crank and
heavy shafts and shafting, beams, tees,
armor plates, uncut b

cessively rusty and burned sheet iron, pipe cessively rusty and burned sheet from, pipe and tubes; also carriage and raifront tires and springs, or any scrap from Bessemer audopen-hearth stee; also mowing machine, hoe, fork, spoon and cuttery trimmings are excluded from all classifications of iron, and

must be subject to special agreement

CAST IRON. Muchinery.—Cast from of best quality and of suitable size and share to be broken with a sledge. Heavier pieces to be broken to size and weight suitable for use in ordinary

Common.—Small and lighter castings of good quality, heavy slove-plate not burned, and miscellaneous lots of acceptable kinds and condition. STRAP STRUE. No. 1 .- Teav / saw plate punchings, gum-

No. I.—Cery's saw pane panenings, gummings and trinonings; ax steel and sythe scrap; small dies and cutters; forgers', machinists' and at ne-cutters' tools for working metals or stone, and heavy clippings, punchings and waste in the manufacture of same, and similar grades of entire crucible-melte i, tool-steel scrap. To be classed as No 1, the scrap must be clean, solid, heavy, and of suitable size to pack in crucible, without cutting.
No. 2.—Bayonet, spindle, ramrod and

crucibles without cutting. All from crucible

#### Special Notices.

## BOOKS ON IRON, STEEL AND METALLURGY.

Bloxam.—Metals; Their Properties and Treatment. By Prof. C. L. Bloxam; 105 illustrations, 312 pages, 12mo, cloth; 1872. . \$1.50 With an absence of technicalities, the au-With an absence of technicalities, the au-thor distinguishes the properties of the useful metals and their mechanical preparation in such a practical manner that the chemical principles involved may be clearly under-

Spretson.—Casting and Founding. By R. E. Spretson; 2d edition, with 82 plates drawn to scale, 412 pages, 8vo, cloth. London, 1880

The object of this work has been to collect in one volume every subject on which a founder will require information. It embraces a full discussion of modern English and Continental practice in casting, found-ing, molding and case-hardening iron, steel, brass, bronze and other materials a founder may have to deal with. The illustrations showworking drawings of cupolas, furnaces, blowing engines and all the machinery necessary to the art. The methods of found-ing statues, bells and articles used for art work and ornamentation are practically

Napier.—Electro-Metallurgy. By J. Napier. 5th edition, 12mo, cloth, illustrated, 216 pages, London, 

This manual contains descriptions of galvanic batteries and their respective peculiar-ities, and the processes of electrotyping, bronzing, gilding and plating. It also includes the miscellaneous applications of the processes of coating with copper, the deposition of metals upon one another, and the general applications of the art to manufacturing purposes.

Urbin-Brull.-A Practical Guide for Puddling Iron and Steel. By E. Urbin and A. Brull; 83 pages, 8vo, cloth; 1868

This work, translated from the French by A. A. Fesquet, dwells fully upon the chemical reactions taking place during puddling, and contains hints upon the relative proportions of the fireplace, bed, flues, &c., to which is added a comparison of the resisting properties of iron and steel.

Svedelius.-Handbook for Charcoal Burners. By G. Svedelius; illustrated, 217 pages, 12mo, cloth; 1875

This translation is a popular treatise describing the methods of charcoal manufacture as practiced in Sweden. Its suggestions are practical and of value to charcoal burners in any locality.

Barr.-A Practical Treatise on the Combustion of Coal. By W. M. Barr; 306 pages, 8vo, cloth;

Includes descriptions of the various kinds of fuel—solid, liquid and gaseous. The construction of furnaces and the different mechanical devices for the economic genera-tion of heat by combustion are practically considered and described.

Mitchell.—A Manual of Practical Assaying. By John Mitchell; 5th edition, edited by William Crookes; with numerous plates and additions, 809 pages, 8vo, cloth; 1881

All that has heretofore been known on the All that has heretolore been known on the subject of assaying is embodied in these pages, and many new facts have been added, including all the late important discoveries in this country and abroad. The mechanical and chemical operations of assaying, furnaces, fuels and crucibles; the properties and preparation of fluxes, and the uses of the blow-pipe, are practically treated. Assay tables are appended, making one of the most complete treatises ever issued. complete treatises ever issued.

De Koninck - Dietz. - A Practical Manual of Chemical Analysis and and E. Dietz; American edition, and E. Dietz; American edition, edited with notes and an appendix on iron ores, by A. A. Fesquet; 282 pp., 12mo, cloth, 1873. \$2.50

This work treats exclusively of chemical analysis and assaying as applied to the manufacture of iron from its ores, and to cast iron, wrought iron and steel. The apparatus and operations are described, and there is also a chapter on the assay of fuels. The work is very thorough, and the methods of analysis of the different elements are clearly intelligible.

Overman. - Practical Mineralogy Assaying and Mining. By F, Overman, M. E.; 11th edition, 230 pages, 12mo, cloth; 1882 . \$1 An active young man, thoroughly experienced in the retail Hardware business.

Address F. & C. HARDWARE, Little Falls, N. Y. Assaying and Mining. By F. pages, 12mo, cloth; 1882 . \$1

Describes the characteristics and uses of the more common minerals, with instruc-tions for mining and assaying according to the simplest methods.

Any book published will be sent, postpaid, on receipt of price. Address

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Cowero, S. Y.

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One Lathe 72 in. swing 17 ft. bed. One Lathe 30 in, swing 18 ft, bed. One Lathe 24 in, swing 16 ft, bed. One Lathe 24 in. swing 12 ft. bed. One Lathe 19 in. swing 8 ft. bed. One Lathe 16 in. swing 6 ft. bed. One square Arbor Fox Lathe. One Planer 54 x 16 ft. bed. One Planer 32 x 9 ft. bed. One Planer 28 x 7 ft. bed. One 36 in. Drill. One 30 in. Drill. One 20 in. Drill.

One No a Lincoln Pattern Miller

Four Hand Lathes.
One Pulley Boring Machine. LOVEGROVE & CO., 152 N. Third St., Philadelphia.

FORSAITH & CO.,

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have the following new first-class modern Engine Lathes ready for instant shipment :

# E. BISSELL & CO.,

83 Chambers and 65 Reade Streets, ANNOUNCE ON

Wednesday, March 28th, AND FOLLOWING DAYS,

LARGE TRADE SALE

Hardware, Table Cutlery, Pocket Knives, Shears, S. P. Knives, Forks, Spoons, &c. Full particulars in later advertisement

For Sale. A wholesale Hardware Business in Philadelphia. with a large local and adjacent trade, established Stock and fixtures for sale and

store to let.

#### Office of The Iron Age, 220 S. 4th st., Phila., Pa. Wanted.

HARDWARE BUSINESS.

A Wrought Iron Stand Pipe, of feet high, 6 feet diameter, with foundation

Manufacturers of such address
LANSUALE WATER CO.,
Lansdale, Pa.

# A Gentleman

well known to the Hardware and Woodenware lobbing trade of the Northern States, from B s-on to Omaha, now representing one factory, de-sires to add two or three others, selling the goods lirect, and on a small salary, he paying expenses. las had years of experience with this ir.de. Address TRAVELER X. Z., Office of The Iron Age. 81 Reade St., New York.

### Iron Turnings Wanted.

Wrought and Cast Iron Turnings wanted. Name price, point of delivery, &c., SITES & GILL,

222 and 224 South 3d St., Philadelphia, Pa.

### To Iron Manufacturers.

Wanted, by a responsible firm, the New England agency for Refined Bar, Hoop and Sheet Iron Mills. Western connection preferred. With the right parties a large annual trade can be established.

Address
Office of The Iron Age, 83 Reade st., New York.

# To Brass Foundries. By L. L. De Koninck To Brass Manufacturers.

WANTED.—A young man who can give the best of references as to character and ability would like a situation in some office or bank. A thorough knowledge of office work and a perfectly satisfactory term of service where last employed is claimed.

Address.

Office of The Iron Age. 8; Reade St., New York.

### WANTED.

A YOUNG MAN, 21 years of age, technical orafts

A man; also a good penman, with a full knowledge
of the French and German languages, understanding
Engrish, desires to become acquainted with the Hardware trade or some similar business, wholesale or ware trade or some similar business, wholesale or retail. Address TH. BEY, 69 Carmine st., 1st floor, New York.

WANTED—A position as Superintendent or Designer and Draughtsman, by a man of long experience in the management of men and work, and in designing a great variety of new machinery, including Martine, Pumping, Stationary and Portable Engines, Guriwork, Machinist, Toois and Boliera, Accustory India and Hong, Stationary and Boliera, and the stationary of th

### Special Notices.

### For Sale.

We have the following second-hand Machinery for sale, viz.:

One Iron Planer, to plane 24 ft. long, 62 in. x 62 n. square. It is powerfully geared, heavy and in in. square. It is powerfully geared, heavy and in good order.

One Iron Planer, to plane 12 ft. long, 36 in. x 32 in., in fair condition.

in., in fair condition.

One Pit Lathe, face plate, 6 ft diam., with internal wheel full diam., external wheel 38 in. diam., quadruple geared, with turn 10 ft. diam. x 21 in. face in pit. Swings 60 in. over ways, 48 in. over carriage, 21 ft. 6 in. between centers. All

over carriage, 2x ft, 6 in. between centers. An complete.

One Engine Lathe; will take in 14 ft, between centers, and swings 53 in. over ways; has hollow spindle, and is adapted for both turning and boring, with countershaft, all complete.

One Engine Lathe; will take in 11 ft. 6 in. te-tween centers, and swings 48 in over shears, 32 in. over carriage. It has internal gear and cross feed; countershaft complete.

One Slotting Machine; 12 in. stroke, slots to the

countershaft complete,
One Slotting Machine; 12 in. stroke, slots to the
center of 46 in.; adjustable table and universal notion. combined Power Punch and Shears to  $\frac{1}{2}$  x  $\frac{1}{2}$  and shear  $\frac{1}{2}$  in. iron. inch % x ½ and shear ½ in. iron.

THE GEORGE PLACE MACHINERY CO.,
121 Chambers and 103 Beade sts.,
New York.

# J. M. BADGER,

5 Dey St., Room 13, NEW YORK CITY, Dealer in

Iron and Wood Working Machinery. Large lists of both new and second-hand good immediate delivery.

On May 1, 1883, I shall open a

NEW MACHINERY DEPOT at No. 49 Dey st., New York, where I shall be better prepared to serve all who may be in want of anything in my line.

### Foundry For Sale or to Rent.

The Foundry lately occupied by the Craighead & Elwell Mfg. Co., at Bridgeport, Conn., with fixtures complete. As it stands, the plant is well adapted for the production of Fine Gray Iron Castings. Apply to

E. B. HORTON,

Bridgeport, Conn.

#### For Sale.

One half or whole interest in a Hardware business, situated in one of the largest towns in Massachusetts, with a good trade.

For particulars address Office of The Iron Age, 83 Reade St., New York.

# STEAM YACHT

For Sale, for want of use. Hull, 32 ft. x 7 ft. beam. Boiler in perfect order. Vertical engine, 8 in. x 8 in. Suitable for passengers or towing. Neatly fitted up with seats, cushions, roof and side awnings. Registered.
A. G. BROOKS & WINEBRENER,
261 N. 3d St., Philadelphia.

### For Sale.

Stock of Hardware, Stoves, Tinware, Queensware and Glassware,

in one of the best and most thriving towns in E. H. WHEELER.

### For Sale.

Well-established Machinery Business, with first-lass stock of tools, centrally located in New York ity. Investment necessary, about \$15,000. Par-lculars and satisfactory reasons for selling upon MACHINERY. Box 773, New York City.

### For Sale.

Worthington Duplex Tank Pump, 12-inch steam ylinders, 14-inch plungers, 10-inch stroke, 13/ uillions 50 ft, high capacity. Address Room 19, Ledger Building, Philadelphia, Pa.

Fine Machinery for Sale, or Investment in a Joint Stock Company.

We have the latest improved Steam Power Machinery for the manufacture of wagons complete. We have already established for the wagons of our manufacture a large trade and fine reputation. This machinery is for sale for cash, or part cash, and balance in approved paper, or it will be put into a stock company at its appraised value, in paid-up stock. R. BALLAUF & U.O., Gen. Agents for the G. A. Kelly Mfg. Co., Jefferson, Texas.

### Wanted.

An old-established firm in Thames street, manu-acturing specially one description of Ornamental Castings, but having warehouse too large for own use, are desirous to meet with manufacturers of other goods requiring them stocked in London and sold on commission. Apply to 203, 30, care of Ironmonger Newspaper, 42 Cannon street, London, England.

# Wanted.

A Partner with \$5000 to \$10,000 in a Foundry and Machine Business, established in 1824. For par-

> I. H. COLLER, Poughkeepsie, N. Y.

# Wanted.

# Power Shears. Must be in first class order, with capacity to cut iron and steel cold to 216 inches round or square. Send full particulars, with lowest price for spot

GUELPH CARRIAGE GOODS CO., Guelph, Canada.

A YOUNG MAN of experience, who speaks English, French and German, desires to introduce or sell some specialty in the Hardware line in the leading European cities. Best of references given. Address W., Care of A. K. Pruden, St. Paul, Minn.

Care of A. K. Pruden, St. Paul, Minh.

Superstraint of Foundry and Machine Shop, with practical ability and experience in Architectural and General Ironwork, Machinery, &c., construction, working drawings and estimating, desires employment, either as general superintendent or foreman in charge of work. References first-class. Address

506 E. 144th st., New York.

A young man who is a thorough practical Book keeper and accountant, and who has tilled a position in the different branches of the shookkeeper, clerk and general a sistent at a rolling mill during the past two years, and possesses a very situation as Chemist or Assistant Superintendent at steel works preferred. First-class references. Address METALLURGIST 30.

Office of The Iron Age, 8; Reade st., New York.

Marsh P. O., Clest r Co., Pa.

### Special Notices.

# New & Second-Hand Machinery.

New & Second-Hand Machinery.

FEB. 21, 1883.

1 Engine Lathe, 14 in. x 5, 6, 7 and 8 ft. Grang & Bogert.

2 of in. x 12 ft., Grant & Hogert. New.

3 of in. x 12 ft., Grant & Hogert. New.

4 of in. x 14 ft. New.

4 in. x 14 ft. New.

5 in. x 14 in. x 5 ft. New.

6 in. x 14 in. x 5 ft. New.

7 in. in. in. x 5 ft. New.

8 in. in. x 5 ft. New.

9 in. x 15 in. x 5 ft. New.

1 in. in. x 5 ft. New.

2 in. x 15 in. x 5 ft. And 6 ft. Ames. New.

2 in. x 16 in. x 5 ft. Lodge & Barker. New.

2 in. x 16 in. x 17 ft. New.

2 in. x 16 in. x 4 ft. New.

2 in. x 16 in. x 5 ft. New.

2 in. x 16 in. x 5 ft. New.

3 in. x 17 ft. New.

4 in. in. x 17 ft. New.

1 in. x 2 in. x 17 ft. New.

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1 in. x 2 in. x 2 in. x 18 in

13c.in. swing B. G. & S. F. Drill. Binsidell. New.
13c.in. swing B. G. & T. F. Drill. New.
13c.in. swing, B. G. & T. F. Drill. New.
11c.in. Shaper. Gould & Eberhardt. New.
11c.in. Shaper. Gould & Eberhardt. New.
11c.in. Shaper. Hendey. New.
12d.in. Shaper. Hendey. New.
12d.in. Shaper. Hendey. New.
12d.in. Shaper. Hewes & Phillips. New.
12d.in. Shaper. Hewes & Phillips. New.
12d. Shaper. New.
12d.in. Shape

H. PRENTISS & CO., 42 Dev St., N.Y.

# For Sale.—\$50,000.

A rare opportunity offered to parties wishing to engage in a weil-established and highly profitable Hardware Manufacturing Business, located in a leading city of Connecticut, with the best facilities for shipping both by land and water. The line of goods is well known and has an established reputation throughout the country. The business is now increasing, and could easily be doubled the coming year. The present company, for want of sufficient capital to run the business properly, will either sell the whole business complete, including Tools, Machinery, &c., and stock on hand, or will retain their present interest and allow the right parties to come in to increase the capital stock, or will sell the valuable plant separate and remove the Tools, Machinery, &c. The business can now be seen running. For further particulars, terms, &c., address at once, Middletown, Conn.

## For Sale. A SCRAP YARD,

Twenty-first & Smallman Sts. of the feet; four Shears, Boiler, Engine, Carts, &c. Yard now in operation. Good opportunity for parties understanding the business.

Address FOX & DRUMMOND, 68 Wall st., New York.

## EXTRAORDINARY OPPORTUNITY.

The Best Located Ironworks in Pennsylvania At Public Sale.

#### IN EXCELLENT CONDITION. The Lochiel Rolling Mill and Furnace Properties,

Furnace Properties,
situate at Harrisburg, Pa., with the Pennsylvania
Railroad, the Reading Railroad and the Pennsylvania Canal all running through the property.
The foregoing property consists of about 48
acres of land in the City of Hairisburg, Pa., with
a large and complete Rolling Mill for making
Muck Bar, Bar Iron, and Iron and Steel Rails.
A first-cass Blast Furnace and numerous dwelling
houses and shops, with all the necessary appliances
of a first-class establishment.
It will be sold on easy terms at public sale,
March 15, 1881, at 1 o'clock p. II.
For conditions of sale, diagrams and descriptive
circulars, address
J. H. LANDS, Superintendent,
Harrisburg, Pa.

## For Sale.

Engine Lathes, 17 in. swing x 8 ft. bed.
Engine Lathes, 17 in. swing x 10 ft. bed.
Engine Lathe, 21 in. swing x 8 ft. bed, cross-feed. Engine Lathes, 21 in. swing x 12 ft. bed, cross-feed E-gine Lathes, 21 in. swing x 12 ft. bed, cross-feed Hand Lathes, 11 in, X 4 ft. bed, back-geared. 5 Heavy Molding Screw Presser ISRAEL H. JOHNSON, Jr., & CO.

1422 to 1426 Callowhill St., Phila., Pa.

### COPARTNERSHIP NOTICE.

ne same should be addressed to

MARTIN L. BRADFORD,

Surviving Partner of Bradford & Anthony,
February 13, 1883.

Boston, Mass. LIMITED PARTNERSHIP.

February 13, 1893.

LIMITED PARTNERSHIP.

This certifies that Warren S. Dame and Raiph M. Kendali of Boston, in the County of Suffolk, Oliver H. P. Stoddard of Hingham. in the County of Plymouth, and Martin L. Bradford of said B. ston, have formed a limited partnership, pursuant to the provisions of the Public Statutes of Ma. sachusetts, tor the transaction of the business of desiers in CUT-LERY, FISHING TACKLE, SKATES and other goods, under the name or firm of Dame, Stoddard at Kendali, the principal rises of business to be in Boston. The said Martin L. Bradford is the special Partners. The said Martin L. Bradford is the special Partner, and has contributed to the common stock thirty-five thousand dolfars, in actual cash paymed, as capital. The said partnership is to commence on the thirteenth day of Februry, 182, and is to terminate on the sist cay of December, 188.

N. S. DAME.

RALPH M. KENDALL, MARTIN L. BRADFORD, COMMONWEALTH OF MASSACHUSETTS.

# CORMON EALTH OF MASSACHUSEITS. SCIFICLE, 88 Then personally appeared the above-named Warren S, bame, cliver H. F. Stoddard, Raiph M. Kendail and Martin L. Bradford, and acknowledged the foregoing instrument to be their free act. Hefore me, A. S. WHEELES, Justice of the Feace. SITUATION WANTED.

COMMONWEALTH OF MASSACHUSETTS.

# Special Notices.

# For Sale.

# 'ACME" BOLT CUTTERS.

6 Single Bolt Cutters, cutting from ½ in. to 1 in. 3 Single Bolt Cutters, cutting from ½ in. to 1½ in. 12 Single Bolt Cutters, cutting from ½ in. to 1½ in. 2 Single Bolt Cutters, cutting from ½ in. to 2 in. 2 Single Bolt Cutters, cutting from ¾ in to 2½ in. s Single Bolt Cutter, cutting from 1 in. to 31/2 in. 6 Double Bolt Cutters, cutting from 1/2 in to 11/2 in With or without Automatic Motion.

# NUT TAPPERS. BOLT POINTERS. &c.

Specialist in All Kinds of BOLT and NUT MACHINERY.

NOVELTY IRON WORKS. CLEVELAND, OHIO.

#### For Sale.

# Palo Alto Rolling Mills,

Near Pottsville, Pa., ON THE MAIN LINE OF THE POTTSVILLE

AND READING RAILROAD. These mills are in good repair, and can be started in two days' time.
Rolls for T-Rails 12 to 70 lbs. per yard, and for Street Rails 12 to 70 lbs. per yard, Unide Mill Train for Merchant Iron ½ to 1 inch. Rolls for Merchant Bar, round and square, up to

Rolls for Marchant Blar, tyuns all a state of the state o

Messrs. LEE & McCAMANT, Extrs., Pottsville, Pa.

THOS. F.WRIGHT, 1804 Race St., Philadelphia, Pa. HUGH W. ADAMS, 56 Pine St., New York.

# For Sale.

The Industrial Works of Shamokin, cwned and successfully carried on for a number of years by the late Win. Brown, deceased, consisting of Foundry and Machine Shop, and a large stack of Patterns regarded as part of the property. Boiler Shop, Blacksmith Shep and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. The works are now running, but in a very short time possession can be given. Easy terms of payment are offered to suit a purchaser of limited capital.

Offered for sale by

purchaser of himself of the by Offered for sale by MM. McILVAIN & SONS, Reading, Pa.

## For Sale.

An old-established Hardware and House Fur nishing Business in Brooklyn, N. Y. Stock varied and in good shape for general retail trade.

GOODHUE, Address. Office of The Iron Age, 83 Reade st., New York.

# For Sale.

No. 6 Sturtevant Blower and Countershaft. 6 Blake Steam Pumps. Good as new. Nos. 3, 4 and 5 Phila. Hydraulic Works Steam

Nos. 3, 4 and 5 and 10 process.

Pumps.

Belt Pump for Hydraulic Press.

4-inch Heald & Sisco Centrifugal Pump.

Small Steam Blowing Engine.

A. G. BROOKS & WINEBRENER,

261 N. 3d St., Philadelphis.

# For Sale.

Two 500 lb. Trip Hammers, but little used. Hammer heads, backboues, shaft, &c., of wrought iron. Heavy anvil blocks with wrought-iron diebeds. Anchor bolts, foundation stones, &c. Everything complete except foundation timbers. Bridgewater Iron Co. made the ironwork of these hammers at a cost of \$2300. Will be sold at a bargain, as we have no use for same. Address PAYNE PETTEBONE & SON, Wyoming, Pa.

## Manufacturing Property for Sale.

The Real Estate of the late Foundry and Machine Company of Taunton, Mass. Buildings consist of Foundry, Machine, Erecting and Blacksmith Shops, and covering about 60,000 square feet of ground. For particulars apply to THE GEORGE PLACE MACHINERY AGENCY.

### For Sale.

To a competent Mechanical Engineer, with experience in managing Machine Shops, an interest in the Omaha Foundry & Machine Co., at Omaha, Neb. The largest and best equipped shops in Nebraska, with a splendid trade and no local competition. Address T. W. T. RICHARDS

121 Chambers St., New York.

# NEW MACHINE TOOLS, &c.

AMERICAN TOOL CO., CLEVELAND, OHIO.

## For Sale.

A machine with oscillating rolls for rolling hapes. Face of rolls, 15 inches long, and necks inches diameter. Will be sold cheap if applied for immediately.

Address Office of The Iron Age, Pittsburgh, Pa.

# SHAPER FOR SALE.

A new Shaper, full 8-inch stroke, and can be adjusted to any less distance; traverse, 846; driving pulleys, 8x236; cone, three speeds; automatic and reversible feed; 8-inch swivel chuck; table, 8x8; vertical adjustment, 7 inches; very finely finished. Weight, yoo bs. Price, \$200, with chuck, countershaft and crank attachment for operating it by hand—very convenient for overtime work.

PEERLESS PUNCH AND SHEAR CO.;
38 W. Dey st., New York.

36 W. Dey st., New York,

Wanted-By a young man thoroughly familiar
with the general Hardware trade, a struction as
traveling salesman in Colorado or adjoining States.
Has had eight years' experience in the store and on
the road. Address

Box 860, Carthage, N. Y.

Box 860, Carthage, N. Y.

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Office The

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# Special Notices. BOYD'S DIRECTORY

# Iron, Steel, Hardware and Metal Trades,

Machinery of every description, Tools,

Agricultural Implements, &c.

Embracing all the Wholesale and Retail Dealers. Manufacturers, Importers, Jobbers, Com-Merchants, Brokers and Artisans in all the Baser Metals, and all goods manufactured from them throughout the United States and Canada.

Great care is being taken to make it full and complete. The information will be classified under business headings relating to the several departments of the trades, and will be arranged therein can be readily turned to.

The size of the work will be a quarto, 71/2 by 10 inches, so that advertisers having large cuts may have ample room for display. It will be neatly rinted and bound, and contain about 400 pages A few pages will be devoted to those who wish to advertise their specialties.

The price of the work to subscribers is \$5, and their names inserted in capital letters. No money collected until the work is pub-

#### ANDREW BOYD.

Wieting Block, Syracuse, N. Y., U. S. of A., Publisher of City and State Directories. Branch office, Room 50, Tribune Building, New

# For Sale or Lease.

## A Large Two-Story Brick Factory,

A Large IWO-Story Drick ractory, formerly Macnine Works, at Pearl River, N. Y., on railroad depot, 25 miles from New York City, Railroad facilities unexceptiorable, on the line of the New Jersey and New York Railroad. The property contains 40,000 square feet floor space, with one 80 H. P. Engine and Boiler, 700 ft. 2-inch line shafting and pulleys, main belts, steam heating and water pipes throughout the building. A splendid iron foundry, 70 ft. by 90 ft., with one iron smelting cupola with Mackenzie blewer, brass furnace, core oven, blacksmith shop, pattern vaults, annealing oven, etc. The property can be bought or leased on liberal terms. For further particulars, price, terms, etc., address

J. E. B. & Co.,

11 Liberty st., New York City, or Pearl River, Rockland Co., N. Y.

#### For Sale.

The largest stock of New and Second-hand Engines, Boilers, and general Machiners in the West, Send for Catalogue. Hoisting Outfits for Coal Mining and other purposes a specialty.

WARREN SPRINGER, 105 to 219 South Capal St., Chicago.

### Lathes for Sale at Low Prices.

One 30 in. x 10 ft. bed, one 17 in. x 11 ft. bed, Hewes & Phillips. One 16 in. Pond and two 13 in.

The above will be delivered in first-class order GEO. A. OHL & CO., East Newark, N. J.

### For Sale.

Second-hand

### DROPS and LIFTERS.

BEECHER & PECK. Lock Box 122, New Haven, Conn.

For Sale. Heavy Planer, 39 in. x 39 in. x 13 ft., with rack extension, to plane 20 ft. Good as new. Seliers & Co. Drilling and Boring Machine, 45 in. swing, back-geared, self-feed, compound tab.e—table raises and lowers by power. Lever Shears to cut 2 x 2.

Lever Shears to trim 1/2 plate.
A. G. BROOKS & WINEBRENER,
261 N. 3d St., Philadelphia.

# For Sale, Cheap.

New Patent Bolt-Heading Machine, made by Greenwood & Bailey, Leeds, England. Also valuable lot of Gun Machinery, used by the United States Government. Send for description of above to JOSEPH LUMLEY, 144 North 3d st., Philadelphia.

### Founder Wanted,

for an Anthracite Furnace in New York. Must be a thoroughly competent man, capable of taking full charge of running. State experience and wages expected.

Office of The Iron Age, 83 Reade St., New York.

### To Lease.

The Machinery Complete of a Plate and Sheet Mill.

Machinery modern, ready to set up, and in good der. Address THOS. R. McKILLIP, order. Address THOS. R. McKILLIP, 130 Dearborn St., Chicago, Ill.

## IRON AND METAL Exchange Memberships

Bought and Sold by WM. WILLIS MERRILL, 4 Stone Street, Room 69.
Dealer in

EXCHANGE MEMBERSHIPS.

CORRESPONDENCE IS SOLICITED

#### with parties having MACHINERY TO BUILD.

Heavy work preferred.

THE HARTFORD ENGINEERING CO.,

# Trade Report.

#### BRITISH IRON AND METAL MARKETS.

[Special Cable Diepatch to the Iron Age.]

LONDON, WEDNESDAY, March, 7, 1883. Scotch Pig .- The market is active, with a good business doing, and prices tend upward. Warrants are quoted at 48/4. We quote makers' prices as follows: Coltress, alongside, Glasgow ......

Langloan, Gartsherrie ummerlee Carnbroe Ardrossan ..... Eglinton, Dalmellington, Shotts, at Leith. Lighterage from Ardrossan to Glasgow is 1/ 🕏

Cleveland Pig.-There is a better feelpartments of the trades, and will be arranged ing in the market, and prices are firmer. States so conveniently that any city or name Transactions during the week have been moderate. We quote makers' prices, f.o.b. shipping ports:

oro' No. 1 Foundry ..... No. 2 "
No. 3 "
No. 4 Forge. .....40/6 @ 40/0

Bessemer Pig.-There is very little doing, and the market closes dull, with quotations nominal. We quote W. C. Hematites, lots equal portions, Nos. 1, 2 and 3, 50/@ 52/, f.o.b. shipping ports.

Blooms-Remain without improvement, the market ruling dull and prices nominal. Bessemer Blooms 7" x 7" are quoted nominally £4. 10/ @ £5, f.o.b. shipping ports.

Manufactured Iron .- There is but little business to report, and prices are weak. We quote at works, nominally:

1					£	g.	đ.		£	S.	d.
Sta	aff. Ord.	Marked	Bars		7	10	0	0	0	Q	0
	5.8	Medium								0	
1	4.4	Common	66		6	0	0	@	6	10	0
Ho	ops, 20, V	V. G. and	ove	r.							
M		mon Bes	t		7	5	0	0	7	15	0
1		um			6			3	6	15	0
	" Com	mon			6	5	0	0	6	10	0
Sh	aets, 20 W	. G. and	unde	er.							
	" Ordi	nary Bes	£		9	10	0	0	10	10	0
	" Com	mon			7	EO	0	0	8	0	0
We	else Bars				5	12	6	0	5	15	0
1	Steel R	alls,-T	he	mar	ke	t is	0	ui	et,	wi	th

a firmer feeling. A good business has been done during the week. We quote Ordinary Sections, £4. 12/6 @ £5. 2/6 f.o.b. shipping

Iron Rails-Continue dull and inactive. We quote Welsh, 3 h and upward, nominally £4. 15/ @ £5. 10/, f.o.b. shipping ports.

Old Rails .- The market is quiet. We quote Old Tees, £3. 15/, and Old D. H's £4 (a) £4. 2/6, c.i.f. New York.

Scrap. - Business is light and prices steady. We quote Heavy Wrought, c.i.f. New York, £3. 5/ @ £3. 15/. Bessemen steady. Crop Ends, run of the mill, are quoted 58/ @ 60/, f.o.b. shipping ports.

Copper.-There is but little business doing in Copper, and the market closes quiet, with prices steady. We quote Best Selected, £70. 10/@ £71. 10/, and Chili Bars, £65. 10/

Tin .- The market is quiet, with a moderate business doing, and prices are firm. We quote: Straits Ingot, spot, £94 @ £94. 10/, and futures £94. 15/@ 95. 5/.

Tin Plates.-The market is quiet and quotations nominal. We quote, nominally: Tin Plates. 10 x 14, 1st qual. Charcoal. 22/ @ 33/
" 2d " 20/ @ 21/
" 1st " Coke... 18/ @ 10/
gd " 17/ @ 18/

Common Coke. Spelter .- The market continues quiet, and prices tend a little in buyers' favor. We quote Ordinary, at shipping ports, £15. 7/6 year:

Lead .- There is a firmer feeling in Lead, and prices tend upward. We quote Common English Pig, £13. 10/@ £13. 15/.

Freights.-Steam from Glasgow to New York, 5/@ 7/, and Liverpool to New York, 2/6; Liverpool to Philadelphia, 3/@ 4/.

### FINANCIAL.

feeling of distrust and oppression which recently weighed heavily upon the business community is dispelled. From all the leading trade centers we have more cheerful reports. Manufacturers and merchants alike now have a stable basis for calculation in all matters affected by taxation and the tariff. But time must elapse before there can be any proper and permanent readjustment after the long period of suspense. The new customs duties take effect July 1st, and the act to reduce internal revenue relieves are as follows: bankers from a tax averaging about \$1,000, oco a month. The two-cent check stamp will not be required after July 1st. To decide a question much disputed, the Commissioner of Internal Revenue holds that the repeal is not retroactive, but the subject has been referred to the Attorney General for final

As yet the volume of trade continues comparatively light. The aggregate bank clearngs last week in 24 leading cities show a slight increase outside of New York, and a decrease in this city of nearly 30 %, compared with the corresponding week in 1882. Collections are reported good in most sections of the country, particularly so in the West, where, according to the Globe-Demo-crat, "the influences of the abundant harvests last year are now beginning to Hi

have their full effect." Even in Louis ville, despite the floods, a prominent house reports their February sales as largely i excess of those for the same month in the previous year. Bradstreet's and R. G. Dur & Co. both report more failures than in the previous week, and more than in the correponding week in 1882, the increase princi pally in the Middle and New England States Respecting the crops, reports come that winter wheat continues to hold its own well." East-bound shipments of freight by the pool trunk lines from Chicago steadily increase in volume.

In financial circles the resumption of gold imports from Europe attracts attention. Or Monday £100,000 was withdrawn from the Bank of England for the Bank of British North America, and another lot of £100,000 is on the way, consigned to Messrs. Morton. Bliss & Co. A leading bullion dealer in Wall street, on being asked to-day for an explanation, replied: "Dear money," there being no mercantile demand for exchange.

The posted rates for bankers' sterling remain at \$4.82 for 60-day and \$4.841/2 for sight, but the market is weak.

On the Stock Exchange during the week under review the market has been active, though irregular, and, as a whole, prices have advanced. On Thursday an advance the revenue bill and early adjournment of Congress. The movement was further strengthened by a fall in the rates of exchange. On Friday the veto of the Fivecent Elevated Railroad Fare bill had a favorable influence, but active money made the tone heavy and uncertain. On Saturday the unfavorable bank statement had some effect in depressing the market, the loss of reserve being mainly due to large demands for specie in the West to pay for produce. On Monday prices showed an advancing tendency, the Gould shares taking the lead. The passage of the tariff bill by Congress had little effect. On Tuesday reports respecting the financial condition of St. Paul and Reading, together with active money, broke down the list, closing 1/4 @ 2 % lower. To day the market was dull throughout, with prices not materially changed. The most active stocks were Union Pacific at 94 Western Union, 823/8 @ 831/8; Milwaukee and St. Paul, 100 @ 1001/2; Jersey Central at 71 % @ 72; Northern Pacific, 4834 @ 49. and Missouri Pacific, 1001/2 @ 1007/8.

Government bonds are firm, closing as

follows:	0
Bid.	Asked.
U. S. 6's, '81, continued at 31/2 1031/2	
U. S. 41/2 s, 1891, registered 1121/4	11216
U. S. 41/2 8, 1891, coupon	11256
U. S. 4's, 1907, registered	11856
U. S. 4'8, 1907, COUPOR	1101/8
U. S. 3 per cents	104 1/4
U. S. Currency 6's, 1895 128	-
U. S. Currency 6'8, 1896129	manufa.
U. S. Currency 6'8, 1897	-
U. S. Currency 6's, 1893	
U. S. Currency o'8, 1899	

A telegram from Washington this afternoon says Secretary Folger will issue another call for bonds as soon as the condition of the Treasury will justify it.

Advices from Albany indicate that no attempt will be made to-night to override Fare bill.

Money is active at 6 @ 7 %. We quote four months' acceptances, 6 @ 7.

this port during the week ending March 2 a full stock at their store in this city : were \$232,792, consisting of \$12,329 in gold and \$220,283 in silver, as against a total of \$59,622 for the week ending March 3 last year. The importations since the 1st of January compare as follows with the movement during the corresponding period last

Since January 1—1882. \$343.949 The bank return for the week shows a

decrease of \$3,523,775 in reserve, which now stands at \$2,314,775 below, against \$2,618,-050 below at the same time last year, and \$427,350 below at the corresponding date in

Office of The Iron Age, Wednesday Evening, March 7, 1883. The following is an analysis of the bank totals of this week, compared with that of last week:

	TOTAL MICON	4			
ı		Feb. 24.	March 3.	Con	parisons.
ı	Loans	\$325,391,000	\$327,472,300	Inc	\$2,081,300
	Specie Legal tend-	58,504,300	55,332,900	Dec.	3,171,400
	ers	20,023,500	18,915,800	Dec.	1,107,700
	Total re-			**	
	serve	78,527,800	74,248,700		4,279,100
	Deposits	309,275,200	300,251,900	Dec.	3.021, 300
	Reserve re-				
	quired	77,318,800	76,563.475	Dec.	755.325
	Reserve	1,200,000	2,314,775	Dec.	3,523,775
	Circulation	16,498,700	16,542,200		40,500
		MINING	STOCKS.		

The closing quotations for mining stocks Bid. Asked.

	Amie	25	27
l	Alice	3.00	3.25
	Alt. Mon	22	2.3
۰	American Coal	25	50
	Belle Isle	43	8:00
ě	Bodie	95	1:00
9	Bulwer	90	1,00
l.	Bassick	8.50	10 00
1	Bradshaw	3.8	33
	California	10	7.4
	Climax	9	
	Con. Va	55	
•	Chrysolite		1 40
	Cen. Ariz		
	Cherokee	3	****
l,	Dankin,	11.11	30
L	Decatur	6	
	Elko Con	8	
-	E. Oregon		95
	(1r. Prize	45	60
	Great Eastern	2	4
-	Green Mountain		70
6	Gold Stripe		8
	Homestake	153%	
-	Hukill	-314	20
	Horn Silver	8	8
	Harlem	2 20	
)	Hibarnia		6

_			_
	Hontongo		
3-	Hortense		
e	Hall-Anders.	1 50	
	Independence	8.40	
n	Iron Silver	2 90	.3
ie	Lacrosse	2	
	Leadville Con	60	
n	L. Pitts	60	
e	L. Chief	40	
10	Maryland Coal	5.00	27
8	Mexican	3.00	
i-	Navajo	3.50	- 4
1-	North'n Belle	01/2	
S.	N. Belle Isle	45	
	Quicksilver	836	
it	New Cen. Coal		
n	Ori. & Mill	2.4	
**	Pipe Line Cfs	923/	
У	Rappahannock	40.19	
	Robinson Con	93	
y	Rising Sun	90	
1	Red Elephant		
3			
d	Standard	3.75	×
n	S. Cliff		
	Sutro Tun.	33	
e	Siarra Chanda	21	
h	Sierra Grande	3 0 3	3
11	South Pacific		
0	St. L. 2 & 3		
	Sorona Con	4 %	
14	Tip Top		1
n	Unadilla	4	
	Vizina	85	I
n.			
e l			
0			

#### GENERAL HARDWARE.

Business seems to be going on without much change, but the hope is very generally expressed that the settlement of the tariff question will have a very beneficial effect on the volume of trade. What the effect on prices of Hardware will be, it is now too early our friends, had become a necessity. Hoping to receive a continuance of your favors, way be said that duties on manufactured articles have been increased, while on materials they are lessened. That very large line of Hardware which comes under the was stimulated in prospect of the passage of may be said that duties on manufactured articles have been increased, while on mateline of Hardware which comes under the category of articles not otherwise provided for has been advanced from 35 per cent, to 45 per cent. Perhaps the heaviest advance in the whole schedule is in Files. only in imported goods that much change in prices is to be expected, and the importers are now considering what advances they will make. Hermann Boker & Co., Alfred Field & Co. and the Wiebusch & Hilger Hardware Co. held a meeting this afternoon to revise prices, and, we believe, agreed on the changes to be made, but the details cannot yet be announced.

Nails are reported fairly active. number and size of orders are on the increase, but we do not hear of any improvement in prices, which vary from \$3.40 to \$3.25 per keg for 10d. to 60d. For a desir-@ 943; Lackawanna, 123% @ 1241/8; able order a further concession of a few cents might be obtained. The price of Strap and T Hinges was reduced to-day, at a meeting of the manufacturers, to discount 55 and 10 per cent., instead of discount 40 and 10 and 10 and 10 per cent. The Lock manufacturers held a meeting at New Haven esterday, when present prices and terms were confirmed.

Schenck's Adjustable Fire Back Co., 52 Dearborn street, Chicago, furnish us the following revised quotations on their goods, which are net:

Scheck's Adjustable Fire Backs ... ... ... ... ... ... Basket Coal Grates ... ... ... Front Fenders, or Grates

Hine & Co. request us to state that the discount to the general trade on Deverall's Patent Oilers is 30 per cent.

The following discount sheet, to apply to goods manufactured by the Plane Manufac-Governor Cleveland's veto of the Five-cent turers' Association, has been issued. It is fuller and more detailed than the summary of prices published by us at the time of the 60 to 90 days' indorsed bills receivable, 6 %; formation of the association, but there is no important difference. Graham & Haines are The importations of specie and bullion at the joint agents of the association, and carry

> Catalogue 1881. Tail Screws.
>
> o2, Hand Screws.
>
> -65, Coopers' Wood Tools

OHIO TOOL COMPANY'S GOODS -CATALOGUE FOR 1582, AUBURN TOOL COMPANY'S GOODS .- CATALOGUE FOR

Bench Planes, stamped "New York Tool Co."
19. Hand Screws
19. Bench Screws
19. Gauges
20. Coopers' Wood Tools
22-23, Plane Irons

We make no Planes of "Ogontz," "Scioto" or "New York Tool Co.'s" Brand, except Smooth, Jack, Fore and Jointer Planes. cases, including Bench and Hand Screws Cases, including Bench and Hand Screws Cases, will be charged for at reasonable rates. Bench Screws packed in cases of one dozen; Hand Screws, to 12-inch inclusive, packed in cases of two dozen, and larger sizes packed in cases of one dozen. Prices are subject to change without nation. All packed in cases of two dozen, and larger sizes packed in cases of one dozen. Prices are subject to change without notice. All invoices will be made at rates ruling at date of shipment. Terms: Thirty days from date of shipment; payable here in bankable funds or New York exchange. No freight allowed, but goods are f.o.b. at either Sandusky, Columbus or Auburn. All prices and terms are the same when orders are filled from our stock, except that cartage will be charged. Cash discount: 2 per cent. discount will be made for cash, provided the invoice is paid on or before 10 days from date of shipment; for invoices not so paid sight draft will be made at 30 days from date of shipment for the full amount of such invoice. Bills of lading accompany all invoices, and we have contracts with the railroad companies to all the principal points at special rates of freight.

METALS.

Copper.—A couple of hundred thousand the have changed hands during the week within the following range of prices. At which the matrice closes quiet: Lake, 17½ ¢. (1 is asserted that some of the latter has sold as low as 15½¢. The modifications of the tarriff, as passed, reduce the duty on Ingot Copper from 5¢ to 4¢; Black and Cemented the Pure Copper contained in Ore, from 5¢ to 4¢; Black and Cemented the Fine Copper contained in Ore, from 5¢ to 2½¢. except such Ore as does not contain over 2 ¢ of Fine Copper, which enters duty free. On this latter item there exists.

We have received the following announce BLACK DIAMOND FILE WORKS, NOS. 21 to 43 RICHMOND ST., PHILADELPHIA, March 18t, 1883.

GENTLEMEN: The growth of our business during the last few years, both domestically and for export, has demanded great addiand for export, has demanded great additions to our premises and to our facilities for manufacturing. We therefore, with some pride, call your attention to the extensive range of buildings we have erected for our offices, warehouse, machine shop, &c. Our factory is one of the largest and most complete for the purpose in the world, and includes an engine of 300 horse-power, giving us ample power throughout. Our machinery, designed and manufactured by ourselves, is of the latest and most improved description. Our stock of Files is invariably kept up to amplitude, enabling us to execute orders with the least possible delay. These considerations, coupled with a firm resolve to maintain the standard of quality that the "Black Diamond" File has always had, and to warrant them in every respect, we offer as a sufficient inducement for a continuance of the kind favors so long bestowed upon us.

Yours respectfully, G. & H. BARNETT.

HAVE REMOVED to 100 Chambers Street, New York, a much

more commodious office, which, thanks to our friends, had become a necessity. Hoping

New York, March 1st, 1883.

NORWALK, CONN., Feb. 26, 1883. We beg to inform you that the partner-ship heretofore existing under the style of Arnold & Co., has by mutual consent been

Arnold & Co., has by mutual consent dissolved. Respectfully yours, A. C. Arnold, T. E. Smith, C. N. Arnold.

The business will hereafter be conducted by the undersigned, under the firm name of Arnold, Doane & Co. Mr. Doane, the new member, has had a wide experience of 30 or more years in the manufacture of Gray and Malleable Iron Castings of every description. and all orders will receive careful personal attention. Soliciting a continuance of favors we remain respectfully yours,

ARNOLD, DOANE & CO.

E. Smith. C. N. Arnold.

#### IRON.

American Pig.-The tone of the market has undergone considerable improvement since our last writing and both buyers and sellers appear more disposed to do business. This improvement is owing in the main to the settlement of the tariff. The outlook presents many encouraging features, and a good deal of new business is expected to be on the market in a week or two. Some good orders have been entered during the week, and we are able to report sales aggregating about 5000 tons. We quote: Standard brands, \$24 @ \$24.50 for No. 1 X Foundry, and \$22 @ \$22.50 for No. 2 X Foundry, and Gray Forge \$19.50 @ \$20.50.

Scotch Pig.-We are unable to report any improvement in the demand for Scotch Irons, and the market has been very quiet during the latter part of the week. Some good business, however, is said to be coming forward, and two or three considerable orders are expected to be placed during the next 10 or 20 days. Quotations are unchanged, though it is said that some brands SANDUSKY TOOL COMPANY'S GOODS.-CATALOGUE FOR could be bought at figures below our quotations, but, in the absence of sales at such figures, we repeat last week's quotations, Eglinton, \$21.25 ( \$22; Carnbroa and Glengarnock, \$22 (a \$22.50; Coltness, \$24.50 @ \$25; Gartsherrie and Langloan, \$24.25 @ \$25, and Summerlee, \$24 @ \$24.50.

Steel Rails.-There is considerable more inquiry on the market, and we hear of inquiries for lots amounting to not less than 50,000 tons. Eastern mills are reported full for several months ahead, and it is not improbable that, as the season opens, orders for prompt shipment will command somewhat better prices than those now quoted. the reduction in the duty on Rails has already been discounted by manufacturers, it will be impossible for foreign competition to come in, except in some remote points, at 4-18. Famcy Planes, all kinds............dis 15 % come in, except in some remote points, at 3-4. Bench Planes, stamped "Auburn Tool" the present prices ruling here and abroad. we give \$39 and \$40 as the basis on which business has been transacted during the week.

Old Rails.—Business in this branch of the market has been

quote \$23.50 (a \$24 for T's and \$27.50 for Double Heads.

ple, a quarter of a million tons, which, with the large output of that mine, is a mere trifle, 11,250,000 fb of Pure Copper, or there-about, will get into the country without paying a farthing of duty. Should such aboas, will get into the country without paying a farthing of duty. Should such importation take place (and we mentioned the other day that preparations are made for it), it will be during a twelvementh an important addition to our Copper supply, for, as we said at the time, even without this Span-ish Ore, we are likely to make in 1883 some not exceed this year 70,000,000 fb. The duty on Brass, in Pigs and Bars, is to be 1½49, while Brass goods will pay 35% instead of 45%. What we have said above about the naw duty or property of the pay duty the new duty on Copper shows that, although at a superficial glance the change does not seem to amount to much, in reality one of the clauses upsets the whole edifice, so that the producer will soon have to take the trouble of looking around for a coutlet. The prospects for the latter are far from flattering, as everybody knows. At the same time we have no market for our Brass goods abroad to speak of, and shall not have till we can make them as cheap as the Europeans do. There was no change in the London market yesterday. This afternoon we are cabled from there as follows: "Little we are cabled from there as follows: "Little doing in Copper. Market closes quiet, with prices steady. Best Selected, £70. 10/@£71. 10/, and Chili Bars, £65. 10/@£65." Manufacturers have made no change in prices. They quote bottoms, 31¢@32¢; Braziers', 30¢@36¢; Circles, 33¢@36¢; Sheathing, 28¢, and Bolt Copper, 30¢; Segment Sheets, 33¢; Fire-Eox do., 30¢.

Tin.—London has been looking up again, cabling last night Straits Tin £94, while to-day we receive the ensuing message:
"Market quiet, with a moderate business doing, and prices firm. Straits Ingot, spot, £94 @ £94. 10/, and futures, £94. 15/ @ £95. 5/." Large lots are worth at New #205. 5/." Large lots are worth at New York to-day 20% of, and jobbing do., 211/6 : L. and F., 22c. Mr. Charles Nordhaus, 17 Cedar street, New York, furnishes, as the statistics for the commencement of the month, the following:

STATISTICS OF TIN. February 1, Stock in United States. Total..... 2 700 February 28, consumption.... 8co 

According to Messrs. Gilfillan, Wood & Co.'s Singapore report, there were shipped from the Straits settlements to the United States last year 109,025 piculs, against \$2,824 in 1881; 144,525 in 1880; 120,216 in 1879, and 68,731 in 1878. Per cable from the same quarter we are informed that the price out there is \$29,50 ft picul, with an exchange of 3/8½, 4 months' bank. The Plates have been quiet and a shade easier. The new duty being 1½ ft b, instead of 1.10½, makes a difference of 11½ ft box in I. C. Tins, and of 14½ in I. X. We quote, at the close, large lines, ordinary brands, ft box: Charcoal Bright, \$5.90 @ \$6.25; do. Ternes, \$5.25 @ \$5.50; Coke Tin, \$5.7½ @ \$5.25, and do. Ternes, \$4.87½ @ \$5. We hear from London to-day that the market is quiet and quotations nominal.

Lead.—Up to to-day the market was in the close of the condition of the market was in the close of the condition of the market was in the close of the condition of the market is quiet and quotations nominal.

Lead.—Up to to-day the market was inactive, but during the course of the day a good demand developed; Soo tons already sold at \$4.60 @ \$4.65 for Common Domestic, March-April delivery, with every prospect of the transactions assuming greater proportions between to-day and to morrow, there being a favorable change of feeling, and the tendency, if anything, upward. Refined has so far been quiet at nominally \$4.60 @ \$4.70; this may also prove susceptible of improvement. St. Louis was firmer at \$4.4¢ for Hard, but on receipt of the news hence Lead .- Up to to-day the market was infor Hard, but on receipts
may take an additional start. As for the may take an for Hard, but on receipt of the news hence may take an additional start. As for the new duty, Old Lead will, instead of 1/2 so

from  $2\frac{1}{4}$ \$\phi\$ raised to  $2\frac{1}{2}$ \$\phi\$. Meanwhile our own market has been as inactive as heretofore at  $4\frac{1}{2}$ \$\phi\$ for Common Domestic, with Silesian nominally  $5\frac{1}{2}$ \$\phi\$. On the other hand, Sheet Zinc has been raised by home manufacturers  $\frac{1}{4}$ \$\phi\$. Fig. 1b., so that it is worth on the spot  $6\frac{1}{2}$ \$\phi\$ this day. Bertha Refined Spelter we quote  $8\frac{1}{4}$ \$\phi\$, and Bergenport  $9\frac{1}{2}$ \$\phi\$. We receive from London to-day the following per cable: "Market continues quiet and prices tend a little in buyers' favor. Ordinary, at shipping ports, £15, 7/6 @£15, 12/6."

Antimony .- A moderate trade continues to be done; Hallett at  $10\phi$  @  $10\frac{1}{4}\phi$ , and Cookson at  $11\phi$  @  $11\frac{1}{4}\phi$ .

# COAL.

Anthracite Coal continues quiet, though one what improved No special activity. somewhat improved. No special activity is expected, however, before about April 1st. The Pennsylvania Coal Co. will get out their 1 spring circular on the 17th, by which time shipments will probably be made from Newsburg. About "comming exists" shipments will probably be made from New burg. About "opening prices," the public are not as yet favored with any intimations from the various companies. What effect the adjournment of Congress may have upon the manufacturing industries, in stimulating the demand for Coal remains to become are not as yet favored with any intimations from the various companies. What effect the adjournment of Congress may have upon the manufacturing industries, in stimulating the demand for Coal, remains to be seen.

The Pottsville Miners' Journal says: "The Sew, ma., cs. 9 150

Mr. Iron, pkgs 15 167

Iron, bdls 5 684

I

a great interest. It enables those who choose usual demand exists for the quantity necesmanufacture of sulphuric acid Spanish "Rio Tinto" Ore, and as this may be done by Tinto" Ore, and as this may be done by hundreds of thousands of tons, the Pure Copper extracted therefrom may, under cover of this clause, come into the United States duty free in enormous amounts, for if the ton of Ore of 2240 pounds contains 2 % Copper, or not quite 45 b ?? ton, and we receive from the Rio Tinto Mine, for example, a quarter of a million tons, which, with the large output of that mine, is a mere trifle, 11,250,000 b of Pure Copper, or thereshout, will get into the country without tons, while thus far the year is almost 450,000 tons ahead of 1882. There is a holding off buyers in the expectation of reductions both in prices and tolls when the spring fairly

Bituminous is very dull and prices are inclined to sag. Purchases for largo lots can be made as low as \$4.30 @ 4.75 alongide.

The freight rate to Boston is \$1.25; to Mf. iron, pkgs or Cutlery, cs... 3

The freight rate to Boston is \$1.25; to Providence, 75 @ So cents.

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the week ending March 6, 1883.

Hambura.

Onen Val

Dutch West Indies. Pumps, pkgs. 2 60
Mf. iron, pkgs 3 39
Mach'y, pkgs. 19 500
Hdw. pkgs. 5 57
Nails, bxs . . 4 72
Ag. imp., pkgs 4 81
Pulm., gais... 6087 1,cor ## Africa:

Hdw, pkgs. 324 4.537
Saws, cs. 33 130
Pumps, pkgs. 3 27
Clocks, pkgs. 11 333
Plim, gals...2,653 3.294
Nails, kegs... 105 900
Ag. imp.,pkgs 207 1,977
Wringers, cs. 52 136
Sew. ma. cs. 6 207
Clocks, pkgs... 7 150
Scales, cs. 85 1,300

Marseilles. Dutch East Indies Ptm.,gls...978,450 104,760 Amsterdam. Pt'm., gls...348,321 26,071 Pumps, cse... 1 50 Ore, cs ..... 4 100 Bremen. Bremen.
Ptl., gls. 1,80,3,38 139.548
Tin plates, cs. 12 1:0
Burners, cse. 1 60
Hdw., cs. 140 2,162
Mach'y pkgs. 21 5,083
Mach'y pkgs. 33 5,540
Clocks, pkgs. 3 925 Marseitles. Mach'y, pkgs. a 100 Dunkirk. Ptlm., gals. 250, 188 18,900 Malaga. Ptlm., gals.. 52,493 4,603 Rotterdam.

New Zeatand. Meh'y, pkgs. 1 251 Pumps, pkgs. 3 186 Ag. imp., pkgs 14 158 Ptim, gais.285,550 22,500 Wringers, cs. 4 73
Saws, cs. 3 62
Pumps, pkgs. 3 1-4
Nulls, Regs. 155 507
Sew. ma., cs. 160
Hdw. pkgs. 624 11,072
Clucks, cs. 5 94
Ag, imp.,pkgs 35 1,105
Tacks, cs. 4 4,873 Christiania. Hdw., pkgs... 36 628 Stockholm. 1,900 Naph..gals.135,660 9.500 Elsinore. Ptlm., gals. 169, 469 14,025 Havre.
Tin plates, cs. 12 120
Mach'y, pkgs. 14 2,853
Sew ma., cs. 74 2 216

Gullery, cs. 6
Green Edw. & Son,
Sets pipes, 32
Side dampers, 2
Side dampers, 2
Side dampers, 2 French West Indies.

Leon bills .... 55 840

Iron, bdls.... 55 849 Ptlm., gals....5000 553 Pilm., gals....50:0 553 Co. Case, 1
St. Fierre (Mique- Latham Alexander & Ptlm., gals., 90,645
Mt. iron, pkgo i

Alicante
Ptlm., gals., 33,645
Ptlm., gals., 33,645
Mt. iron, pkgo i

Alicante Spears, cs., 2
Arms, cs., 3
Pim. Forwood & Co.
Cases, 7
Packages, 7
Iron buckets, 24
Schowerling, Univ. Ptlm., gals.152,312 12,700 Ancona. W. mills, pkgs 32 1,270 Schoverling, Gales,

Cuba.

Alexandria. Ptlm., gals. 161.380 15.735 case 172 Liverpool.

| Liverpool. | Sew. ma., cs. 563 | 8,700 | Mer. goods, cs 8 | 550 | Steel, pkgs. 475 | 14430 | Z., dross, cks. 12 | 150 | Saws, crates. 8 | 241 | March y. pkgs. 20 | 2,493 | Hdw., pkgs. 15 | 160 | Cutlery, cs. 16 | 187 | Cutlery, cs. 16 | 187 | Cutlery, cs. 16 | 187 | Cutlery, cs. 17 | 61 | Mf. fron, pkgs 25 | 1,055 | Mf. fron, pkgs 33 | 2,976 | Mf. fron, pkgs 35 | 130 | Mf. fron, pkgs 15 | 2,672 | Mf. fron, pkgs 17 | 2,672

ew. ma., cs., vapo'tor, cs., irearms, cs.,

Hull. British West Indies. Ptlm., gals, 54,829 6,074 Sew. ma., cs. Auchers. Pumps, pkge. Metal, cs.

British Guiana. Pumps, pkgs. 2 Hdw. pkgs. 10 Cutiery, cs. 12 Scales. 2 Guis, box. 1

Fenezuela.

Felm., gals., 20,000
Hdw., pkgs... 95
1,0.
Revolvers, cse... 95
McGilos, Lkgs... 2
Mf. fron, pkgs... 9
Sew. ma., cs... 19
4
Scales, c4... 9
Nails, pkgs... 73
Cartridges, cs... 2
Mach'y, pkgs... 4
French Gujung Spiegel, tons, 304
Drewel, Morgan & Co.
Pig. tors, 553
Pig. lot
Elliot & Sons,
Ore. tons. 160
Green Edw. & Son. Green Edw. & Son.
Green Edw. & Son.
Castings, ex., 18
Castings, bdis., 4
Hume Bros. & to.
Castings, 136
Bars, 22
Lee Jas & Co.
Fig. tous, 202
Lundberg thust.
Wire, coils, 971
Merchants Dis. to.
Tubes, 136
Moors J. B. & Co.
Fig. tons, 202
Pig. tons, 202
Pig. tons, 202
Rods, pkgs., 6192
Spelman W. R., Jr.
Spelman W. R., Jr. French Gulana. Ptlm., gals....1000 Argentine Republic. Sawg, case . 1 37 -calles . 10 250 -calles . 230 230 Scales . 30 480 -146 1 300 -146 1 300 -146 1 300 -156 Santo Domingo. Nails, kegs ... 9 Tacks, cs ... 12 Sew. ma., cs ... 7 Whis. & axics,

Wire rods, cks, 6
Williamson J. & Co.
Pig, tons, 400
Order, Bars, for Canada, 191 Galvanized sheets. Galvanized sheets cs., 10 cs., 10 Plates, 120 Castings, cs., 12 Castings, bdls., 4 Pipes, sets, 12 Pig., cks., 71 Pig. tons, 450 heavy wrought, kg., 50,704 H 'vy wrot., tons, 263 Heavy scrap, kg., 300 330

Mexico. Clocks, pkgs. 223 3,033 Mach'y, case. 1 60 W. mills, cs. 9 180 Ag. inp.,pkgs 62 1,900 Pdm, gals, 20,000 Lisbon. cales, es. ... Quan. United Sta es of Co-'tlm. gals 

347

514

Nails. 5.
Nails. cs...
Clocks, pkrs...
Iron pipe, pcs.
Nails. kegs.
Ld. bipe, pkge
Steel plts., bxs
W. mill.
Iron. pkgs
Mf. iron. pkgs
Rivets, kegs. Saws. cs.
Nails, cs.
Revolvers, cs.
Water closets,
pkgs.
Car wheels. 7 2,147 Sew. ma., cs., 68 Mach'y, pkgs. 163 Cutlery, cs., 32 Whis. & axies,

pkgs..... Tin plts , bxs. Locomotives Locomotives... Scales, cs.... Cartridges, cs. Iron, pkgs.... Excavator.... Steel rails Hayti. Tacks, cs.... Windlasses... Ptlm. gals... 993 Cotton gins... 4 Mach'y, pkgs. 4 98 Windlasses... 360 Firearms, Cse 50 Iron pots.... Uruguay. Brazil.

Bratile
Hdw., pkgs... 97
Cartridges, cs 8
Nails, kegs... 180
Sh. nails, bxs. 9
Revolvers. cs. 2
Scales, bxs... 96
Br. tubes, cs... 3
Saws, case... 1
Pumps... 1 Spanish Possessions Ptlm., gals...... 13 Ptlm., gals...20,167 Rifles, case Rifles, case... 1 Cutlery, cs... 28 L178 L178 Iron safes... 2 Clocks, pkgs... 30 19 Mach'y, pkgs. 20 Mf. iron, pkgs... 2 in Africa. Japan.

154 Br. shells, cs 214 3,848 IMPORTS

Hardware. rder.
Old scrap, tons, 16
Old scrap, lot
Old rads, 2702
Old rais, pcs., 6220
Manganiferous pig,
CKS, 143
Raiis, 4562
Bundles, 1716
Sheets, bills., 33
Black taggers, bxs., Hardware,

Bucher B. B.
Files, pkgs., 7
Boker, Hermann & Co.
Hdw., cuttery and
guns, pkgs., s2
Brown Vernon H. & Co.
Files, cs., 2
Cortin R. I. Order Chain, 1 Nails, cs. 2 Drexel, Morgan & Co. Cases, 13 Field Alfred & Co.

Graef Cutlery Co.

cks., 7 Auvils, 125

ler, Cutlery, cs., 5 Crank pins, 13

Ore, tone, soo Rods, pkgs., 813 Rods, pkgs., £13 Serap, tons, 455 Coiled rods, 269 Serap, tons, 227½ Hoops, bdls., 2000 Gal. wire, coils, 315 Wire, coils, 887 Wire rods, hdls., 1464 Wrought beams, 541 Steel. Bucher H. H.

Bundles, 98
Blake Bros. & Co.
Bundles, 160
Brown Verbon H.
Case

Brown Vernon H.
Case, 1
Bundles, 3
Carey & Moeu,
Wire rods, bdls., 387
Rods, bdls., 1105
Cohn & Co.
Casks, o
Downing, Sheldon & Co.
Bundles, 40
Iron Clad Mfg. Co.
Bundles, 217
Meissner, Ackermann &
Co.
Rods, bless Co. Rods, pkgs., 742 Merchants' Dis. Co. Bundles, 65 Pim. Forwood & Co. Cases, 50 Ploch & Co.

Temple & Lockwood, Mdse., pkgs., 47 Wagner W. F. & Co. Bundles, 111 Cases, 25 Bars, 39 ler, Bundles, 331 Rods, pkgs., 8343 Steel bands, 223 Steel bands, 223 Packages, 22 Wire, colls, 11,202 Rars, 28 Forgings, 88 Cases, 4 I icces, for Canada,

Metala. Bond, Parsons & Co.
Tin plates, bxs., 2350
Bank of Montreal,
Tin plates, bxs., 3605
Tin and terne, bxs., Baring Bros. Tru plates, bxs., 261 Canadian Bank of Com-

Tin plates, bxs., 261
Canadian Bank of Commerce,
merce,
Tin plates, bxs., 3700
Carter, Hawley & Co.
Tin, slabs, 324
Challoner F. G. & Co.
Old metal, pkgs., 5
Crooks R beet & Co.
Sheet zinc, cks., 3
Dickerson, Van Dussen
& Co.
Auttimony, cks., 17
Dowaing, Sheldon & Co.
Gun caps, cs., 4
Hunt John,
Lead pipes, cks., 6
Marcial & Co.
Cupper, pkgs., 9
Copper, lot
Meyer G. A. & E.
Zinc oxide, bbls., 410
Zinc oxide, cs., 50
Morkan W. D.
Tin plates, bxs., 260
Phelps, Dodge & Co.
Tin plates, bxs., 265
Phelps, Dodge & Co.
Tin plates, bxs., 264
Pin. Forwood & Co.
Brass rods, bdls., 4
Pin. Forwood & Co.
Brass rods, bdls., 4
Pinch & Co.
Tin, slabs, 1373
Riker J. I. & D. S.

Pioch & Co.
Tin. slabs, 1373
Riker J L & D. S.
Quicksilver, bottles, Star Union Line, Heavy brass, cks., 37

Order, Tin plates, bxs., 18,231 18,201 Lead, pigs, 494 Tin, bxs., 90 Tin, ingots, 1800 Tin, bbts., 10 Tin, slabs, 760 Quicksilver, bottles, Old brass, cks., 12 Tin sheets, cs., 15 Plumbago, bbis., 120 Lead, pigs, for Can-ada, 430 Tin plates, bxs., for Canada, 500

FOREIGN TRADE MOVEMENTS.

The following is a summary of foreign trade movements during the past week: IMPORTS.

For the week ended March 2:

Total.......\$10.45,513 \$10.912,977 \$11,339,604
Prev. reported. 60,250 775 76,459,053 69,725,601 1881. Since Jan. 1 .. \$70,496,288 \$37.372,030 \$81,065,\$65 Included in the imports were leading articles of merchandise valued as follows: Pkgs.

Value Anvils Brass goods Bronzes hains and anchors. lopper Gas fixtures lardware..... on, hoop, tons... on, lig. tons on, sheet, tons... Iron ore, tons.... Iron, other, tons Nails.
Needlas
Needlas
Nickal.
Old metal.
Platina
Pins.
Plumbago
Quicksiiver
Saddlery.
Seel. Seel Steel pens 51,703 Spelter...
Tid, boxes.
Tin, 4,755 slabs, lbs...
Wire
Zinc. 44.092 7,240

The quantity of leading articles imported compares with previous weeks as follows:

For the g weeks week. of 1883. Cutlery, pkgs
Hardware, pkgs.
Iron, R. R., bars
Lead, pigs
Steel, pkgs
Tin, bxs
Tin slabs, ibs 213 15.798 355.695 32.9°3 292.438 314.779 3.538.705 210,532 442 200 1,050 EXPORTS OF SPECIE.

For the week ended March 3: Total.... Previously reported..... Total since January 1, r883....

Same time in 1882.

Same time in 1883.

Same time in 1886.

Same time in 1886.

Same time in 1879.

Same time in 1877.

Same time in 1877.

Same time in 1876.

Same time in 1876.

Same time in 1876.

Same time in 1874.

Same time in 1874.

Same time in 1874.

Same time in 1874.

Same time in 1874. EXPORTS EXCLUSIVE OF SPECIE. For the week ended March 6:

1881, 1882, 1883, \$8.921.297 \$6,676.353 \$7,720,703 58,472,295 \$1,253,210 \$5,078,113 Total ... Prev. reported ... Since Jan. 1.....\$67,393.592 \$57.929,563 \$62,798,816

OLD METALS, PAPER STOCK, &c.

The purchasing prices offered by dealers are as follows : Copper, heavy.

light.

Copper Bottoms.

Yellow Metal.
Brass, heavy.

Brass, light.

Composition, heavy.

Leaf, heavy. ... @
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. Leaf, heavy Tea Lead... owter, No. 1. ight Iron. 1 ton. 22.50 Stove Plate.... Machinery do... Grate Bars.... 13.00 15.00 ectrotype Plates

The prices current (prices paid by local dealers) for Rags, &c., are as follows:

## PHILADELPHIA.

Office of The Iron Age. 220 South Fourth St., PHILADELPHIA, March 6, 1883.

The tariff question disposed of, merchants and manufacturers are now turning their attention to business. The schedule is not by any means what the trade has desired, but, on the whole, is quite as favorable as could have been expected, considering the circumstances. Now that the act has passed, the various interests affected will endeavor to adjust themselves to its requirements, although in the Steel trade particularly it will be a very serious matter. The general feeling, however, is one of satisfaction that the question is settled, and as prices are by any means what the trade has desired. the question is settled, and as prices are already at a low point, the change for the present is not likely to exercise the slightest present is not likely to exercise the slightest influence of an unfavorable character. On the contrary, there is a better tone to the market already, and a largely increased demand is anticipated from this time for-ward, at all events up to midsummer, if not beyond that beyond that

Pig Iron.-During the past four or five Pig Iron.—During the past four or live days there has been a very active inquiry, and in many instances a decided increese in the volume of business as well. Consumers have allowed their stocks to be run down almost to the point of exhaustion, so that buying with many is not so much a matter of chains as of pagessity. It is quite probable. buying with many is not so much a matter of choice as of necessity. It is quite probable, therefore, that prices have touched bottom for the present. At the same time, it is not likely that there will be anything more than a change of feeling—confidence instead of timidity, a firm market instead of an irregular one, and possibly a slight reaction on such brands as have dropped below their very irregular.

ordinary level. This, however, is merely an opinion, but it seems to be held by most of the leading concerns, and is doubtless well founded. In the meantime, as we have already stated, sales of larger quantities have been made than for some time past, and all the indications favor the idea of an increasing volume of business. As a rule, prices for furnace deliveries are quoted at \$23.50 @ \$24 for No. 1 Foundry, \$21 @ \$21.50 for No. 2 do., and \$19 @ \$20 for Gray Forge. In cases in which sales were for prompt cash, or the lots were large, concessions of 50¢ @ \$1 \$2 ton have been made, and in other instances, for choice brands, an advance of 50¢ @ \$1 has been obtained, according to circumstances.

Bessemer Pig.-There has been no manifestation of a disposition to buy, although it is thought that the slight reduction in the at is thought that the siight reduction in the tariff on Pig and on Ores will have a tendency to increase the demand for Bessemer Pig. In the meantime, \$22 @ \$22.50 is asked without bringing out any offers likely to lead to having to lead to business.

Speigeleisen .- There were two or three inquiries on the market last week, and it was expected that business would be closed. Sellers have quoted \$32 @ \$32.50 for 20 %, but no sales have been made, so far as

Muck Bars .- Market quiet and unchanged at \$36 @ \$36.50 at mill.

Blooms.—There is a fair demand at unchanged prices, viz.: Charcoal Blooms, \$63 @ \$65; Run-out Anthracite, \$55 @ \$57; Scrap Blooms, \$48 @ \$50; Northern Ore Blooms, \$45 @ \$47.50.

Bar Iron.-The market has been very Bar Iron.—The market has been very quiet during the past week, and still remains in a somewhat unsatisfactory position. The tariff appears to bear rather heavily on this department of trade, as it is estimated that the foreign article can be brought in at about 2.3\(\phi\). It is true that there is no immediate danger, as at least .1\(\phi\) @ .2\(\phi\) more would be paid for American Iron at any time, but prices are already very near the danger line, while every little advance will reader the position still more precarious. At less than 2.3\(\phi\) manufacturers claim that At less than 2.3¢ manufacturers claim that there is no margin for profit whatever, and there appears to be very little prospect for reducing cost. The labor question bids fair to cause trouble again this spring, but it will be utterly unavailing to clamor for an advance of wages unless the products of labor can be advanced, which in the present condition of affairs is manifestly impossible. Under these circumstances the position is far from satisfactory, although it is hoped that business will be allowed to resume its course without further interruptions. Sales have been made at prices varying from 2.2¢ At less than 2.3¢ manufacturers claim that course without further interruptions. Sales have been made at prices varying from 2.2¢ to 2.3¢ for Refined Bars, according to specification, and at about 2¢ for ordinary quality. Skelp Iron very quiet at 2.25¢ @ 2.3¢.

Plate and Tank Iron.—There has not been much new business placed within the past week, but the majority of the mills are fairly well employed. Sales during the past few days will probably equal the output, so that the position is virtually unchanged. The market has a somewhat quiet appearance, although manufacturers appear to be very sanguine as regards the outlook. Prices are steady as last quoted, viz.: 2.5¢ @ 2.6¢ for Boat and Tank Iron, 3.5¢ for Shell, 4.5¢ for Flange and 5.5¢ for Fire-Box, with concessions on orders for large lots. Plate and Tank Iron.-There has not

Structural Iron.—The market continues Structural from.—The market continues very quiet, and manufacturers have considerable difficulty in finding business enough to keep their hands together. There is no doubt that the demand will increase in course of a few weeks, but in the meantime the feeling is one of extreme depression. Prices are as follows: Angles,  $2.5 \phi$ ; Tees,  $3.3 \phi$ ; Beams and Channels,  $3.5 \phi$ . and Channels, 3.5¢.

Sheet Iron. - The demand during the week has been fair, although sales have not been quite in proportion to the number of inquiries. It may be inferred that prospects are .0434 good, however, inasmuch as buyers appear to be making inquiries for all the various grades, and in all sorts of quantities. Prices are as before, subject to the usual conces-sions on large orders, as follows:

١.	
	Common Sheets, No. 28
	Common Sheets Nos of and
	Common Sheets No
	Common Sheets, No reta -
	Best Refined V & advance
	Best Bloom Sheets No of to a Boove.
	Best Bloom Sheets, No. 26 to 28
	Best Bloom Sheets No 16 to 25 61/4
	Common Red Plates
	Blue Annealed 226 to 10
	Best Bloom, Gaivanized, discount
	Second quality, discount

Boller Tubes.-The market is very irregular, with sales at 55 % @ 60 % discount from list price. Steam Pipe is nominally 67 % @ 70 % discount, but in some cases additional discounts have been made, particularly on large sizes.

Steel Rails .- The market has been very Steel Rails.—The market has been very dull, and still remains in a very depressed condition. The tariff bears heavily on this important interest, and competition for busi-ness in the South and Southwest will doubtless hese in the could and southwest will doubtless be very close. Sales have been made dur-ing the week at \$39 @ \$40, but buyers of large lots are looking for concessions. Un-less for Southern deliveries, there is not much probability of orders being sent abroad at prices now quoted, so that on the whole at prices now quoted, so that, on the whole, buyers will probably have to meet sellers' requirements. Sales during the week nearly all in lots of a few hundred tons

Crop Ends -Foreign Crops are held somewhat firmer, say \$22 @ \$22.50, according to shipment. At some of the Pennsylvania mills they are offered at \$21.50, f.o.b.

Old Rails.—Market very quiet; T's are offered at \$25 for spot lots or to arrive, but there is no demand except for very small lots. Double Heads nominal at about \$27.

Serap Iron.-The market is not very active, although stocks are somewhat small. Cargo lots command from \$26 to \$26.50, and Choice Selected, from yard, \$27.50 @ \$28.1

Nails .- Market dull and weak; minally about \$3.25, but the market s

find in the state of the state will unc Fin can

very ture futur on G Ole there time, claim our la that Doubl

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month differe Tees. Stee change velope points. The refully dare produbtformade unate 41.

Rail Spikes Splice I Square

#### PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, FITTSBURGH, PA., March 6, 1883.

The new tariff bill as passed by Congress does not meet with anything like general approbation. The Hoop and Cotton-tie manufacturers are very indignant, as are also the Steel-Rail men, while as regards the Tin-Plate interest, it has been wiped out of existence, so far as this country is concerned. Steel manufacturers also feel very much disgusted, and thus far but very few, if any, of our manufacturers are at all favorably impressed with the new bill. Western fron men, almost without exception, would much rather the tariff had remained as it was, but, as the matter has been disposed of, an improvement in the general Iron and Steel business is looked for before long; indeed, a firmer and more confident feeling has been developed already, the result of a restoration of confidence. Mr. N. M. Thomas, a well-known Scrap dealer, has been forced to make an assignment; liabilities and assets not stated. Some of the banks here hold paper of his, but they are amply secured. No other financial troubles re-ported, and not likely to be, as our Iron men never were in better condition financially than at present; they have very little paper out, and are abundantly able to pay all they

Ores.-The situation remains unchanged Furnacemen appear determined to buy only as their immediate wants require; hence, so far as we can learn, no contracts have been made for future delivery, and none are likely to be. Furnacemen say that for some years past they have been working for the Ore companies, coke makers and the railroads. companies, coke makers and the railroads, and that this year they propose to try and do something for themselves; that if there is no money to be made they will blow out. There has been no price fixed for Lake Ores There are various rumors in regard the action of the Republic Ore Co., but the general belief is that the price of Repub-lic Ore will be fixed at \$8 or \$8.50 ? ton, which is all or more than furnacemen will be able to pay, according to the outlook at

Present.

Pig Iron.—There is more inquiry, and an increased business has been done the past week, and while prices are no better, a firmer feeling has been developed. Offers that would probably have been accepted a week ago are now being refused; we are cognizant of a mill agreeing to take 1000 tons of a certain brand at the price offered, but the seller refused to accept the same. The

No. 1 Foundry	\$22.00 @ 23.00. A MOS.
No. 9 "	20.00 @ 21.00 4 **
Neutral Forge	19.00 @ 20 00, 4 4
All-ore Forge	21.00 (6 22.00, 4 "
B Chargest	22.50 6 4 4

We can report a sale of 1100 tons Besseme at \$22, cash; 1000 tons Neutral Forge at \$19.50, cash, and 200 do. at \$20, 4 mos.; also some small lots at \$19, 4 mos.

Muck Bar .- There is no demand, and not a single sale has been reported for sovnot a single sale has been reported for several weeks. That there is not much offering is because sellers, we presume, know that it is not wanted, and that there is no use to put it om the market. We are informed, however, that a good Neutral is for sale at \$35, cash, and might be had for less

Manufactured Iron.-There has been an increased inquiry the past week, and a firmer and more confident feeling developed; in other words, there are no sellers at the extreme low prices quoted a few weeks ago. There was a good-sized order here from New York last week, which was refused by all the best mills under a 2-cent base. A largely increased business is looked for within the next week or two. It is pretty evident that prices have reached the lowest point, and jobbers and consumers will soon make the discovery, if they have not already.

Nails.—According to agreement, all the factories represented in the Western Nail Association have been closed, and will remain so for two weeks, by which time it is hoped and expected that the spring trade will have fairly opened up. Prices remain business. Shippers and dealers in heavy materials are again busy. There is no change

Wrought-Iron Pipe,-There has been very little change in the situation during the past week. Business continues fairly active, but prices are unsatisfactory, and manufac-turers generally are refusing to contract for future delivery at present rates. Discounts on Gas and Steam Pipe are still quoted at 70 @ 70 and 5%, and on Boiler Tubes 55% off. Oil-Well Casing quoted at 50% @ 55% % foot, net, and do. Tubing at 15% @ 17%.

Old Rails.—American Tees, of which there have been no sales reported for some time, are being offered at \$26, and it is claimed cannot be bought for less. One of our largest consumers, on being interviewed, said that he had bought none recently, but that he would take 10,000 tons at \$25. Double Heads—no sales here for several months, and none offering; there is too much difference between the price of these and

Steel Rails .- While prices remain unchanged, there is a firmer feeling being de-veloped here, and, we believe, at other points of manufacture west of Pittsburgh. The reduced duty on foreign Rails has been fully discounted, and as the mills hereabout are pretty well supplied with orders, it is doubtful whether a contract could now be made under \$40, and some mills are quoting

Railway Track Supplies. - Railway Spikes remain unchanged at 21/4¢, 30 days. good request and steady. Mills are on Splice Bars, 21/4¢: Track Bolts, 3/4¢, with double turn. We quote at \$2.40; large bills Square and 3.60¢ @ 3.65¢ with Hexagon about 10¢ higher for small lots from stores;

An increased business is looked for Railroad Spikes, \$3.20; Track Bolts, nomithe next few weeks, and the outlook nally at \$4; Fish Plate, \$2.50. within the next few weeks, and the outlook is favorable for a good trade.

Steel .- Some of our manufacturers report that, while business is nothing to boast of, it is all that can be expected under existing circumstances, and, now that the tariff question has been taken out of the way, they look for more orders in the near future. Prices remain unchanged.

• Crop Ends.-In the absence of sales we continue to quote at \$25. Some of the largest consumers are pretty well supplied. The Rail mills here are using about all they make. and consequently have but few, if any, to

Scrap-Continues very dull, but prices remain about as last quoted. Wrought Scrap, \$25 @ \$26 ?? net ton for Ordinary and \$27 for Selected; Wrought Turnings, \$17 @ \$19; Old Car Axles, nominal, \$34 @ \$36; Old Car Wheels, \$23 @ \$23.50, gross; Cast Borings, \$13.50 @ \$14.

Coke-Continues dull and weak. Prices have been reduced to \$1.05 ? ton, free on cars at ovens to blast furnaces, and \$1.15 @ \$1.20 for small foundry orders.

#### CHICAGO.

Office of The Iron Age, 36 and 38 Clarke St., cor. Lake, Chicago, March 5, 1883.

Hardware.-The market is firm, and the emand for Hardware generally shows a steady improvement.

Nails—Remain firm in this market at \$3.50 \$\biggreap\$ keg for 10d. to 60d., with the usual discount of 2 % for cash. The demand is

Manufactured Iron.—The week opened with increased inquiry for Merchant Iron, and the market may be quoted as firm, while prices remain unchanged. We quote: Bar Iron, 2.30¢ @ 2.40¢ rates; Angle Iron, Iron, 2.30¢ @ 2.40¢ rates; Angle Iron, 3.10¢ @ 3.30¢ rates; T Iron, 4¢ rates; Beams, 3.80¢; Channels. 3¢; Tank Iron, 3¢ @ 3.20¢ rates; Sheet Iron, 3.20¢ @ 3.40¢ rates; Norway Original Bars, 4½¢ rates; Norway Re-rolled Bars, 5½¢ rates; Ulster, 4½¢ rates; Low Moor Iron, 8¢ rates; Nuts and Washers, 8¢ off list; Wrought Boat Spikes 4½¢ rates Spikes, 314¢ rates.

Pig Iron.-Now that the tariff question has been finally disposed of, dealers antici-pate a better feeling in the Iron trade than heretofore existed, believing that consumers request. Calumet, \$23 @ \$23.50, 4 months.

Steel .- The market is somewhat quiet, Steel.—The market is somewhat quiet, while prices remain unchanged. We quote as follows: Tool, 12\$\psi\$; Machinery O. H., 5\$\psi\$; Crucible Machinery, 7\$\psi\$; Hammer, 2 inches and under, 8\$\psi\$; over 2 inches, 9\$\psi\$; Cast Spring, 6\$\psi\$, and O. H. Spring, Tire and Sleigh Shoe, 5\$\psi\$; Sheet, first, second and third quality, 12\$\psi\$, 10\$\frac{1}{2}\$\psi\$ and 8\$\frac{1}{2}\$\psi\$ respectively; Crucible Plow, 6\$\psi\$; Eagle Plow, 5\$\psi\$; Iron Center Plow, 9\$\frac{1}{2}\$\psi\$, and Soft Steel Center Plow, 9\$\frac{1}{2}\$\psi\$; Cast Plow, 5\$\psi\$; German Plow, 4\$\frac{1}{2}\$\psi\$. Plow, 41/26.

Scrap Iron .- As previously reported, the Scrap 1701.—As previously reported, the market continues dull and weak, although dealers anticipate a better state of affairs in the near future. The following are the purchasing prices paid by dealers: No. 1 Railroad Wrought Scrap, P net ton, \$22; No. 1 Country Wrought Scrap, P net ton, \$20; No. 1 Cast Scrap, P ton \$17; No. 1 Stove Plate Scrap, P ton \$11; Machine Shop Wrought Turnings, P ton, \$10; Cast Iron Borings, \$7

### CHATTANOOGA.

Office of The Iron Age. Market and 8th Sts. ) CHATTANOGGA, March 5, 1883.

unchanged, but being higher relatively than Finished Iron, many buyers claim that they cannot much longer be maintained; but manufacturers do not agree with them.

Wengelt Iron Diversity opened up. Prices remain business. Shippers and dealers in heavy materials are again busy. There is no change in prices worth noting, and no failures have except small mercantile establishments in the Cotton helt. The Cotton helt. verted in the South for several weeks, tept small mercantile establishments in Cotton belt. The Cotton trade of Chatthe Cotton belt. tanooga will be comparatively large this year, reaching probably about 50,000 bales; another compress is being erected to accom modate the increased business. The week closes cool and clear, with prospects of frost.

Pig Iron.-Reports of failures and blowing out in the various Pig Iron districts of the North favorably affect production in the South. Our furnacemen are not accumulating any stocks, nor will they. When they cannot dispose of their output they will either change its character to something that will sell or close down. High-grade Foundries are still scarce, but a period of the present favorable weather will supply the shortage. We quote: No. 1 Foundry, \$22 @ \$23; No. 2 Foundry, \$20 @ 21; Gray Forge, \$18 @ \$19; White and Mottled, \$16 @ \$18; Car-\$19; White and Mottled wheel Metal, \$26 @ \$28.

Ores.-We quote: 50 % Brown Hematite, 20 ton, \$2 @ \$2.75; Red Fossil, \$2 @ \$2.25, delivered at furnace.

Miscellaneous Articles .- Old Rails are slow at \$25; Old Wheels, \$25 and nominal; Wrought Scrap, \$23; Cast Scrap, \$13 @ \$15. Nails.-The action of the Western Association, agreeing to close all Western mills two weeks, has stiffened the market in the South.

We quote at \$3.40, at mills, 60 days; small lots from stores, 15¢ higher. Manufactured Iron.-Bar continues in

Coal.—Best Lump, \$4; Common, \$2.50@ 3; run of mine, \$2 at mills. Coke.—We quote: Furnace Coke, \$3 at oint of consumption; Foundry, 10¢@ 12¢

Steel and Iron Rails .- Rails are nominal. There is no market here. Railroad managers get what they need from Pannsylvania mills at \$38 @ \$40 for Bessemer. Iron Bars are rerolled by the Chattanooga mill to keep their hands together and furnish them means to live.

#### LOUISVILLE.

GEO. H. HULL & Co., Commission Merchants, report to us as follows, under date of March 3, 1883: The water has subsided and some of the foundries are making purchases in anticipation of resuming work again soon. The demand from the foundries that were not overflowed has been unuries that were not overflowed has been un-interrupted, and sales, while not large, have have been frequent. Some sales have been booked in the last week for delivery 12 months ahead. Prices are a little lower, and we revise quotations as below. We give cash prices for round lots:

FOUNDRY IRON.

No. 1 Hanging Rock Charcoal No. 1 Southern Charcoal No. 1 Hanging Rock Stonecoal and	\$75.50		
Coke	21.50	0	22.00
No. 1 Southern Stonecoal and Coke.	31.50	600	22.50
No. 2 Southern Storeccal and Coke.	29,50	0	21.00
"American Sestch "	21.00	0	22.00
Open Silver-gray	20.00		
Close Silver-gray	19.00	@	19.50
MILL IRONS.			
No. 1 Charcoal	21,00	0	21.50
No. 1 Stonecoal and Coke, Neutral	10 50		
No. 2 Stonecoal and Coke, Neutral	10.00	as	19.50
No. 1 Stonecoal and Coke, Cold-short	18.50	@	19.00
No. 2 Stonecoal and Coke, Cold-short White and Mottled, Cold-short and	18.00	0	18 50
Neutral	17.00	0	18.00
CAR WHEEL IRONS.			
Hanging Rock, Cold-blast	30.00	3	32,00
Hanging Rock, Warm-blast	85.00	0	27.00
Cold-blast	25.00		
W P PETERAD & Co Iron		-	

W. B. BELKNAP & Co., Iron and Steel Merchants, Nos. 115 to 121 West Main street, report to us as follows, under date of March 3, 1883: There is a better inquiry for Bar 3, 1883: There is a better inquiry for Bar Iron, but no change in the market, which remains quiet. Prices have reached, on both Bar and Sheet Iron, a point lower than at any time since the boom. If there be any virtue in low prices to stimulate consumption, e should certainly see an immense amount used this year. The several failures of fur-naces and mills lately reported will probably have a healthy influence, rather than other-wise. The rolling mills at New Albany start next week, which would indicate start next week, which would indicate enough local sales in sight to keep them busy. Manufacturors complain that Pig Iron and Old Rails are holding their own far out of proportion to the demoralized far out of proportion to the demo figures current on Bar and Sheet. deferred spring trade has been decidedly stimulated by a week of fair, drying weather, with a sun so genial that the most obdurate traveler must open his cloak to it. We quote: Bar Iron, from store, 2.20¢ @ 2.25¢: quote: Bar Iron, from store, 2.20¢ @ 2.25¢: Heavy Sheet, 10 to 14, 3.20¢ @ 3.30¢; Light, gauges 26 and 27, 4¢ @ 4.20¢. Nails are in better supply, but the proposed closing down next week will serve to keep up the price. Mills are firm at \$3.40 card. Jobbers here are not asking much more than factory net cost, freight added—say \$3.45 @ \$3.50 net. The decline in price of Bar Wire meets the approphagion of the trade. Demand for Plows approbation of the trade. Demand for Plows is large and urgent. Local stimulus to business is given by preparations for our Exposition. The building is under way and appliis under way and applications coming in freely.

## CINCINNATI.

March 5, 1883.—Pig Iron.—During the past week the market has been very inactive; transactions were so scarce as to furnish no quotations on sales. The disposition of our foundry and mill owners is to clean up their yards before buying new supplies. The few small orders that came in have been filled at last week's quotations. The above report of the Pig Iron market governed all other branches of the Iron trade during the week. During the last two days there has been some inquiry for Manufactured Iron, and the outlook is upon considerable activity in all branches in the present month, and not in the direction of lower prices.

### ST. LOUIS.

Hoffer & Co., Pig Iton and Iron Ore Merchants, 417 Pine street, report to us as follows, under date of March 3, 1883: We have no change to report. Quotations are:

HOT BLAST CHARCOAL IECNS.
Missouri       \$21,00 @ 22,00         Southern       22,00 @ 23,00         Ohio       27,00 @ 29,00
COAL AND COKE IRONS.
Missouri       \$21.00 @ 22.00         Southern       20.00 @ 22.00         Ohio       21.00 @ 26.00
MILL IRONS.
Red Short
CAR WHEEL AND MALLEABLE IRONS.
Missouri         \$24.00 @ 25.00           Southern         25.00 \$30.00           Ohlo         25.00 \$35.00

### BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following under date of March 5, 1883:
We have to report a somewhat improved market for the past week, though trade continues ruling flat and unsatisfactory. Annexed we append revised list:

nexed we append revised list				
	D	234	0	2.35€
1 10 479 A 178 10 1 17	Ib	21/4	0	2.35\$
and Square	To	21/4	0	2.35€
Hoop Iron, 11/2 wide and upward			0	3 3-100
Rand Iron, from 11/2 to 6 in. wide		2 7-10	66	28-100
		33/4	60	3 16 €
Norway Rail Rods	6.6			
	0.6			
Machinery Steel				
	60			456
Common Horse Nails	6.6			22 6
	0.6	26-10	an	2 7-106
Perkins' Horse shoes, & keg of re	00	D		4.8714
	Ref. Bar Iron, 1 to 6 x % to 1. 19  " 1 to 4 % x 1 % to 1. 19  " 2	" 10 4% x 1/5 to 1. D 1 1 2 2 Round and Square 2 Round and Square 1 D 1 1 2 2 Round and Square 2 Round 1 2 2 2 Round 2 Round 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ref. Bar Iron, 1 to 6 x ¾ to 1. ₩ b 2¼ " 10 4½ x 1½ to 1. ₩ b 2½ " 2 x and Square	Ref. Bar Iron,

#### RICHMOND.

ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows, under date of March 6, 1883: This market is firmer; sales of Fig Iron effected at full quotations. Business is reviving, and the future outlook is decidedly more encouraging.

No. 1 Scote	h Pig Iron		\$25,00 6	A 28.50
No r Anth	racite Pig	Iron	. 25 00 6	0.27.00
NO. 2			23.00 (	T 00.00
No. 1 Virgi	nia Coke I	Pice Trove	22 20 6	Barro
No. 2	**	61	. 21,00 (	5 22.50
No. 3	"	8.6	. 20.00 (	£ 22.00
white who	morried .		18 00 6	7 21.00
Virginia C.	B. Charco	al	. 27.00 (	7, 20 00
Old Dom. I	ails (carle	oad lots	 . 3406	D
Old Rails	*********		 25.00 6	7. 26,00
Old Wheels			 . 10,00 6	6 22.00
Wrought S	crap, No. 1		 . 22,00 (	7 24.00
Cast Scrap.	No. 1		 . 10.00 G	6 20.00
Richmond 1	Refined B:	ar Iron	 2 4-10	& base
Horse Shoe	s (Tredeg	ar)	 4.50 6	9
Mule "			 . 5.50 6	
			0.0.0	

#### SAN FRANCISCO.

J. W HARRISON, Coal and Metal Broker, 204 California street, reports as follows, under date of Feb. 24, 1883: Pig Iron.—There are signs of improvement in business among the foundries, and melting now will steadily increase. There is no likelihood of any material change for some time in prices. as the stock here is adequate for all present possible consumption.

PRICES TO ARRIVE.	SPOT PRICES.
Per ton.	Per ton.
Eglin'on \$25.50	Eglinton \$26.00
Glenzarnock 27.50	Glengarnock 27.00
Shotts No. 1 28.50	Shotts No. 1 29.00
Clay Lane, White. 23.00 American Soft 31.00	Clay Lane, White. 25.00 American Soft \$2.00
CoalVery few sale	
in fact, all the coal	now en route has been
already placed, and pr	rincipally among con-
sumers, where no resa	les are probable. The
uncertainty of the wes	
ers back from offerin	
otherwise would; hence	
doing for futures. The	
as the quantity now af	
Coast Coals find ready	sale on arrival at full
prices. New York fi	reights on Anthracite
have been advanced,	
almost unprecurable.	and are good to out to
amost unprecurable.	1

PRICES TO ARRIVE.	
***************************************	Per ton.
Australian	\$7.25 @ 7.50
Liverpool Steam	7.25 @ 7.50
West Hartley	7.50 60 7.75
Scotch Splint	7.25 @ 7 50
'ardiff	7.50 @ 7.75
ehigh Lump	13.50 @ 13.75
Cumberland, bulk	11 50 @ 11.5
Egg, Hard	12 25 @ 12.50
SPOT PRICES.	
	Per ton.
Australian	\$7.10
Averpool Steam	7.50
Vest Hartley	******* 8.00
Scotch Splint	8.00
Cardiff	8 ca
ehigh Lump	
'umberiand, bulk	11.50
Egg, Hard	12.50

# Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From Our Regular Correspondent.

LONDON, ENG., Feb. 19, 1883.

THE WEEK has again been characterized by quietude—a state of things which does not provide much straw for the correspondent who must turn and no great amount of confidence, it is difficult, if not impossible, to draw the line between that which is and that which may be.

is already producing limited effects here and there, in the shape of stopping blast furnaces, &c., but the leaven is almost certain to work more actively, and, therefore, to yield enlarged results. In many quarters it is held that the world is undoubtedly making too much iron and steel, and that these engaged in both branches do not pay sufficient attention to the influences brought into play by the constantly growing substitute. these engaged in both branches do not pay sufficient attention to the influences brought into play by the constantly growing substitution of steel for iron. The probabilities rule in favor of this being true in a sense, although it is not so emphatically correct that it would apply under all conditions. It is almost contain that is almost certain that we are turning out more iron and steel than the world needs at the moment—if it were not so, indeed, we should not be lamenting the dullness of trade—but to say that we are making more than the world needs under very slightly altered circumstances is to make a statement not capable of easy proof, or disproof, either, for that matter. Let us argue as we may, at any rate we have the facts before us. The whole iron trade of the world is dull, and there is uncertainty, hesitation and a declen-sion of values alike in free-trade England or Belgium, and in protectionist America, France or Germany. The business lan-guishes, and I have as yet met with nothing approaching to a practicable suggestion for its revivification. What is clearer than any-thing else, nevertheless, is the fact that the future mainly depends upon the course of events in the United States. You alone possess the key of the situation.

#### THE IRON MARKETS have undergone no changes of note during

have undergone no changes of note during the week. About the middle of the period there was quite a spurt at Glasgow, and warrants, which had been down to 47/4, ran up to 48/ ? ton. The uninitiated, not to mention some of those who are more wary, were puzzled by the change, and thought their good friends at Glasgow had got hold of some capital piece of information. Inquiry and the exercise of a day's patience pricked the bubble, and demonstrated that the affair was merely a speculative gasp on the part of certain members lative gasp on the part of certain members of the ring, who were anxious to cover themselves, as well as to start a bull movement. This ascertained, the market settled down into its old lethargic state, and the week ended with warrants at 47/6 @ 47/8 or ton, Makers' brands of Scotch pig remain dear, as I have previously pointed out. main dear, as I have previously pointed out, when compared with warrants, yet the ship-ments are good for the season, and there is a smaller call for Middlesboro' pig in Scot-land itself. It is not very easy to explain why makers' iron should continue so dear, save makers' iron should continue so dear, save on the supposition that a great deal of the large stock held by Connal & Co. is composed of a very inferior grade of iron. I do not say of my own knowledge that such is the case, but it is roundly asserted that of really choice Scotch brands there is very little indeed in Connal's warehouses, which are alleged to be filled with cinder pig of the poorest description. I should doubt the truth of this assertion, seeing that each warrant (every warrant represents 500 tons) gives the seassertion, seeing that each warrant (overy warrant represents 500 tons) gives the security of Messrs. Connal & Co. for 300 tons No. 1 and 200 tons of No. 3. Now, the probity of Messrs. Connal is beyond question, and I am convinced that they hold as much No. 1 as their warrants specify. Whether the No. 3 is all "lirst-chop" or not Law much to state—very likely some of it. Whether the No. 3 is all "first-chop" or not I am unable to state—very likely some of it is poor in quality, albeit not the mere "cin-der pig" described by its detractors. At all events, the iron is being largely withdrawn from the stores, as much as 42,000 tons of it straw for the correspondent who must turn out his stated tale of bricks whether the material is thin or plentiful. When I last wrote, I thought I perceived a feeble tendency in the direction of an improved condition of business, but up to the time of this writing I must honestly confess that I have not been enabled to obtain any really corroborative evidence in support of the impression. I don't think I was wholly in error in placing that impression on record, however, for I still hear of a number of inquiries for large lots of certain kinds of iron. If these inquiries be genuine—and I have no good reason for assuming that they are not so—it is a fair inference to draw that there are orders about, and that those who have the power of giving them out have no good reason for assuming that they are not so—it is a fair inference to draw that there are orders about, and that those who have the power of giving them out will do so directly they are satisfied that bottom figures have been reached. Up to this the inquirers have clearly not satisfied themselves that such is the case; hence it is probable that they will wait somewhat longer before placing the specifications they have in hand. In taking this course they cannot be blamed, inasmuch as it is scarcely possible to state that the decrease from Connal's may be genuine, and simply the outcome of the consumptive and simply demand. The consumptive and simply demand.

sell at present rates. For the United States there are inquiries for c.i.f. rates, but these are not sufficiently favorable to secure sales. are not sufficiently tavorable to secure sales. Heavy wrought scrap is nominal at 58/66 60/ \$\mathbb{T}\$ ton f.o.b. London, for selected assortments. For blooms there were several American inquiries last week, but none appear to have led to business—indeed, our ssemer concerns do not seem anxious to sell their blooms. Crop ends, run of the mill, are nominal at about 60/f.o.b. Wales, &c. Steel rails are a little steadier, owing to the placing of the Australian order men-tioned in my last, and of several other commissions on Indian, Continental and Colonial account.

#### SCOTCH PIG IRON

is quiet, but makers' quotations are fairly steady; shipments compare favorably with those of the corresponding period of 1882. The stocks in Connal's steres are still decreasing, and less iron is coming into Scotland from Middlesbro'. Other features of the Scotch market have been alluded to above. There are at present 111 furnaces blowing, as against 106 a year ago. In Connal's stores there are now 595,374 tons, against 630,895 tons this date 1882, and 637,526 tons at mid-ummer last. The decrease last week was 2485 tons. Shipments to date have increased by 6139 tons, last week's total being 12,530 tons, or 1744 tons over 1882. The Importations from Middlesboro' to date have declined by 11,268 tons. Writing from Glasgow on February 17, James Watson & Co. said: "The Scotch iron market has been firmer this week, with a slight advance in the price of warrants, but there is still a very limited amount of business doing in them. There has been a better inquiry for makers' iron and a little more doing; quota-tions are, however, very steady. The Middlesboro' iron market continues exceedingly dlesboro' iron market continues exceedingly dull, shipments being small and makers' stocks accumulating; prices have conse-quently receded about 6d \$\text{P}\$ ton. The warrant market here advanced last Monday from 47/4½ to 47/7, cash, and on Tuesday the price further improved to 48/% ton. On Wednesday the market was flat, business being done from 47/10 to 47/6½ % ton. Yesterday the market hardened from 47/7½ to 47/9 \$ ton, and to-day a limited business was transacted between 47/10 and 47/8, closing with sellers at the latter figure. The shipments last week were 12,530 tons, as compared with 10,786 tons for the corres-ponding week of last year." We quote:

			NO. I.	140.3.
G. M. B., at G	asgow		49/	47/6
Clyde,	40		5#/6	50 6
Coltness.	4.4		65 6	55/
Langloan,	0.0		66/	55/6
Gartsherrie,			62 6	53 6
Summerlee,	60			50/
Calder.				51/
Carnbroe,	66		56/	50/6
Glengarnock, s	t Ardros	san	56/	50/
Eglinton,	6 +			48/
Dalmellington.	6.0		50/6	49/6
Shotts, at Leitl	h		65/	56'
Kinneil, at Bo'	ness		49/	48/
Carron of Gen	ngemout	h	50/0	

#### HEMATITE PIG IRON

is dull, slow of sale and cut in price by second holders. Makers ask 52/ and upward for mixed parcels, but merchants offer at 50/@51/6. West Coast quotations are:

	No. 1.	No. 2.	No. 3.
Cleator	 58/	57/6	57/
Lonsdale	 53/6	53/	52/6
Workington	 53/6	53/	52/6
West Cumberland	 		
Lowther		52/6	\$2/
Moss Bay	 ** ****		
Distington	53/	52/6	52/
Harrington	 54/	53/	52/6
Solway	 53/	52/6	52/
Maryport	 53/6	53/	52/

There are 59 of 82 furnaces blowing on the There are 59 of \$2 furnaces blowing on the West Coast, whence last week's shipments included 11,335 tons of pig iron and 2975 tons of steel rails. For North of England, hematites, f.o.b. Cumberland ports, prices are as under: No. 1 ordinary, 54/6; Bessemer, 54/6; No. 2 ordinary, 53/6; Bessemer, 53/6; No. 3 ordinary, 52/6; Bessemer, 52/6; No. 4 foundry, 52/6; No. 4 forge, 52/6; mottled, 52/6; white, 52/6.

### MIDDLESBORO' PIG IRON

is depressed and subjected to bear influences, is depressed and subjected to bear influences, in addition to a poor demand. Shipments are only about two-thirds of the total during the same month of last year. Makers ask 41/6 for No. 3, but merchants quote 41 and are only able to sell a very limited quantity at that. For G. M. B., f. o. b. at makers' wharves in Tees, net cash (less 2½ % discount), on 10th of following month, quotations are:

No.	Foundry 45/6	Mottled4c/ White
4.8		Refined Metal 56/6
**	41/ 1	Kentledge 41/6
*1		Cinder

and shipbuilders of the North | will perhaps be rem of England are very busy, but the plate mills

### FOREIGN.

#### FRANCE. (Moniteur des Interets Materiels)

feet in length. For the navy and army a great many orders will be forthcoming without delay, especially the former, so that between one branch and another there is to be about the amount of work during the year which turns up in a normal year. But, of course, our productive capacity is greater than formerly, so that it would be wrong on the part of makers to expect much of an advance in prices. Coal is quiet and the output very large.

#### BELGICM.

(Moniteur Industriel.)

BELGIUM.

(Moniteur Industriel.)

BRUSSELS, Feb. 10, 1883.—Iron.—Not much of a change has occurred in the fron situation in this country. The blast furnaces have so far failed to receive the fresh commands for spring they are accustomed to at this time of the year; they therefore feel less confident than they did a week ago, and may have to abate a little from their pretensions in order to encourage rolling mills, whose position continues precarious in the absence of orders, and in the face of the altogether too high ruling of Pig. While Merchant Iron goes begging at 13 francs, Pig is still held at 5.25 % 6.25 francs. Euzembourg still firmly holds Foundry at 6.25 and Puddling at 5.35. Sheet Iron in this market may be quoted 18 francs for No. 2; No. 3, 20, and No. 4, 28; at these figures it cannot be called firm. The usual run of Merchant Sheets ranges between 22 and 24, Adjudications for locomotives an 1 tenders required by the Government impend. The Government took 16,400 tens Steel Rails from the Seraing, Angleur, Augree and Louviere at 14 francs Won. Fig fron production in Belgium last year has been 717,000 tons, against 524,001 in 1881, 58,000 in 1880 and 451,000 in 1890. Steel Ingots, 170,000, against 141,000, 120,000 and 110,000; Steel Plates, 135,000 in 1891, against 122,000. We imported 288 00 tons of Merchant Iron and exported 468,000 tons for family use, has remained remarkably firm. Our consumption last year was 12,692,000 tons, against 12,150,000 in 1881, and our exported. Metals have been weaker. We quote to-day: Copper, 175 francs \$\frac{1}{2}\$ to Cad.—All Coal, with the \*xception of Coal for family use, has remained remarkably firm. Our consumption last year was 12,692,000 tons, against 5,772,000 in 1881, and our export 5,853,000, again

#### GERMANY. (Borsenhalle.)

(Borsenhalle.)

Hambuno, Feb. 21. 1833.—Iron —The Iron situation in Germany, we are glad to say, begins to bear a more encouraging look. The demand revives; quite a number of fresh adjudications may be put on record for the week, spreading animation among works and machine shops. As for Pig Iron it should, however, be remarked that it is held less firmly. Puddling in particular, orders for which are slack, while Foundry and Bessemer sell more easily than Puddling. But for the recent curtailment of production, we should witness a downright decline in Pig. As for Merchant Iron, it is decidedly better held by makers, the only lots still going low coming from dealers' hands. Of blast furnaces recently blown 64t there has been only one, and that was in December last, one turning out Spiegel. Silesian blast-turnace, as well as rolling mill, owners have met and raised prices. Metals have been devoid of animation. Lead has been dull; we quote English Pig 15 @ 15.60. and German 14 @ 14.50 marks \$\frac{1}{2}\$ see \$\frac{1}{2}\$. The his given way to 103 @ 105. Spelter, without anything doing, is lower; we quote the same 16.50 @ 16.78.

Cologne Gazette.

#### Cologne Gazette.

Cologne Gazette.

Dusseldorf, Feb. 20, 1883.—Iron.—An improved feeling is noticeable in this district; quite a large demand has of late sprung up for drawn Wire; Boiler Sheets remain steady. Our Steel works are most busily engaged in turning out railroad material. Fig Iron has moved off in large amounts during the week. The drawback which the foderal Government will allow on Wire when exported will be 4 marks; the mills export usually 30 % of their make; a similar drawback will not unlikely be granted on Merchant Iron and Sheets. We quote at the close, in marks, \$\mathbb{Y}\$ ton; Prime Spiegel, 2; White Pig, No. 1, 6; Luxembourg.

46; Charcoal Pig, 84; Foundry; and 3, 66 @ 75; English, No. 3, at Ruhrort, 64, 95; do. Bessemer, at port of shipment, 52/6 @ 53/; German Bessemer, 64,50; Merchant, 140 @ 105, and Sheets, 165 @ 22. In Coal and Coke the feeling is as buoyant as before.

### HOLLAND.

(Koch & Vlierboom.)

ROTTERDAM, Feb. 17, 1831.—Tia.—Banca is scarce and firm at 57.50 % 57.75 guilders  $\Re$  52 kg: Billiton, on the other hand, was sold on the spot at 50.50, now held at 57, while futures 3 months hence command 57.25.

### CHILL.

(Weber & Co.)

Valparaiso, Dec. 30, 1882.—Copper.—Owners preferring to consign their Copper to Europe rather than subscribe to current rates. Not much has transpired at \$1,70,9 @ \$1,82.5 \mathbb{P} quintal, on board, as to brand and freight rate, 0712 quintals thus changing hands. The Nitrate demand has been light, 600. Most of the lots sold had to go at \$2.50 with 0.5%; toward the close the feeling improved slightly, but buyers are indifferent, while producers cannot make up their minds to reduce their output; 183,000 quintals, all told, were taken at \$2.50 @ \$2.62\forall\_2. Nitrate Charters for the fortingth sum up 11,000 tons. Exchange, 90 days' sight, 30d. @ 30\forall\_4 \mathbb{P} dollar.

An Historic Ferry Boat .- The transfer boat Maryland, after having been thor-oughly overhauled and improved, has again been put on the transfer ferry between Harlem River station and the Pennsylvania Rail-road station in Jersey City. The Mary-land is now more than 30 years old, and will perhaps be remembered by many travelers and old soldiers. The boat was built in 1852 for the Philadelphia, Wilmington and are less active. In several quarters the development of the salt deposits is being proceeded with in an energetic manner by the ironmasters.

1852 for the Philadelphia, Wilmington and Baltimore Co., and at that time was believed to be the largest ferry boat in the world. For a number of years she was used to transfer trains across the Susquehanna between Perryville and Havre de Grace. At the beginning of the war, when railroad com-munication between Baltimore and Philadelphia was interrupted by the burning of the bridges near Baltimore, the boat was for some time in very active service transporting troops and stores from Perryville to Annapolis. After the bridge over the Susquehanna at Havre de Grace was built, she was laid up for several years, and in 1876.

which, if we understand the description will be a signal failure. That it will rise in but the batteries are heavy. From some accounts it is probable that they will be as heavy as steam engines developing an equal amount of power. They will also be costly. amount of power. They will also be costly. The motion will be slow, and if there is any considerable breeze, the balloon, in spite of propellers, will drift before it. Lastly, the gas will continually escape and the machine will necessarily come to the ground within a very short time after it first The amount of money annually pended in projects of this kind, the failure of which could be demonstrated beforehand, is sufficient to build a machine capable of lifting itself and a man into the air and moving at a rate of speed of perhaps 20 miles an hour. The great point to be reached, and one which is worth discussing, is that of actually lifting the apparatus into the air by means of a proper application of power. When this has been done, and mechanical flotation, if we may so term it, achieved, the rest will be easy.

#### The Future of Steel and Steel Rails.

An elaborate and valuable review and an-An emporate and variable review and analysis of the steel industry which was published in the Revue Universelle des Mines some time since, has just been issued in pamphlet form, and contains a large amount of interesting matter specially related to the future of steel rails and of the establishments which are at present devoted to their duction. M. Paul Trasenster, of the E des Mines, of Liege, the author of the paper has gone very deeply into the subject, his figures and conclusions are worthy further consideration. The great length of the paper precludes the possibility of its publication in full, but the following review, taken from the Ironmonger, of Loudon, will give some idea of its general character. Referring to the investigations of M. Trasenster,

our contemporary says:

"The significance of and necessity for such an examination at the present time cannot well be disputed, especially in view of the dullness of the rail trade and the considerable drop in values which has occurred within the past few weeks. So long as rails absorb the principal share of the Bessemer steel the iron trade will be relatively free from keen competition, but with any marked and sustained declension of the demand for and sustained deciension of the demand for rails, it is certain that rolled Bessemer must compete far more seriously with iron than it has done hitherto. It is to this point that M. Trasenster chiefly directs his elaborate earches and statistics. Into some sections of the inquiry we do not propose to follow the author, and we therefore pass over his figures as to the consumption of ore in steel making and the make of Bessemer pig iron in different countries. He shows that there are 91 Bessemer steel works and 280 converters and Siemens furnaces in use in the world, and estimates that they are equal to the make of 7,500,000 to 8,000,000 tons of ingots per annum, including 1,000,000 tons of crucible and other steel. As to the consumption, he sets down about 3,480,000 tons as rails, and 1,000,000 tons as other rolled or hammered products. It is thus apparent, argues M. Trasenster, that about three-quarters of the steel produced is transformed into It is, therefore, important to analyze and estimate the demand for those articles. During 1881 there were made in the whole world about 4,185,000 metrical tons of steel and iron rails, about 700,000 tons being iron, of which quantity 566,000 tons were laid in the United States alone. The consumption of rails throughout the world during the last to years has varied from 2,350,000 to 4,150,-000 tons, averaging 75 tons per km. (125 tons per mile) in Europe, and 60 tons (100 tons per mile) elsewhere. Following up these figures, M. Trasenster sets down the consumption tion of rails in ISSI at 4,185,000 metric tons of which he assigns 1,510,000 tons to new lines and 4,665,000 tons to replacements on old lines, explaining the apparent discrepancy of the figures by estimating that 1,990,000 tons of the rails used were really made the year before

"He recognizes the difficulties of making an accurate approximation to exact facts for his purpose, but estimates that in the United States there were on January, 1882, 210,000 km. (126,000 miles) of lines (counting all as single lines), with sidings, of which 79,000 km. (47,400 miles), or about 37 per cent., were laid with steel rails. Germany had 58,000 km. (34,800 miles) of way, of which 22,000 km. (13,200 miles), or about 38 per cent., were of steel. Belgium had in 260,000 tons of steel and 270,000 tons of iron rails in use, or 49 per cent. of steel. In England the percentage of steel is put down at 55 per cent., in France at 50 per cent., in Russia at 60 per cent., in Austria-Hungary at 44 per cent., in Canada at 75 per cent., and in other countries at an average of 45 per cent. From these factors M. Trasenster proceeds to the elucidation of his problem. He assumes that all the steel rails made since 1871 are still in use, the Paris. Feb. 21, 1831.—Metalz.—Business has been moderately active. Metals have been in better request and a little ligher, except Lead, while lower. We quote at the close: Copper—Child Bars, 171,501 Best Selected, 180, and There Corocore, 175. Th.—Banca, 238 71. Head, total quantity made being 17,250,000 tons. From this he deducts a proportion for stock on hand, en route, &c., leaving from 15,000,000

"The year 1900 is fixed by the writer as rightly, are to be run like propellers. If we are not very much mistaken this machine ance of iron rails, and by following out the will be a signal failure. That it will rise in the air there can be no doubt, and that the Planté batteries will move it is also possible; senster) he estimates the renewals of 1883 at 1,710,000 tons, and those of 1884 at 1,540,000 tons. Of the 17,000,000 tons of iron rails remaining in use, about 7,000,000 are in the United States, and will be replaced by the native steel works, while only 4,000,000 tons are in non-industrial countries open to the competition of the German, Belgian and English works. The last factor in the cosumption of rails is the construction of new lines, which M. Trasenster sets down at about 30,000 km. (18,000 miles) during 1882, or equal to about 2,000,000 tons of rails. On the whole, the author believes that the con-sumption of steel rails has attained its maximum, and that, in consequence, the outlook for the rail mills is not brilliant, notwith-standing which the steel works are everywhere being developed. For that reason he holds that it will be imperative to extend the other uses of steel. He recounts and allows for the difficulties of dealing with the new material, its comparative dearness for some purposes, the greater care and knowledge needed by the workmen, &c., but he never-theless believes that the steel works must find new outlets. 'The production of iron,' he says in conclusion, 'is too important, and its uses too varied, for the consumption of steel not to be susceptible of new advances.'

#### Enameling Cast Iron.

An English journal contains the following account of the manufacture of enameled hardware:

The principal point in the manufacture of nameled hardware is the preparation of the enamel itself, which is kept more or less secret in the works, and will probably vary a little in different districts. The mode of eparation described below is known by writer to give good results, producing an enamel of a good white color and of great durability, and is used by an old-established firm, whose enameled hardware has always enjoyed a good reputation in the trade. The cast-iron pots are fettled in the usual manner, and stored, if required, in a dry room to prevent rusting. They are then transferred to the pickling shed, and pickled in diluted sulphuric acid and scoured with sand. To remove the acid and dry them they are swilled in hot water, and dry of themselves when taken out, after which they are separately examined and finally rubbed perfectly dry with cloths. They are They are then ready to receive the grounding or body coat. This is prepared in the following manner: A mixture is made of 50 pounds manner: A mixture is made of 50 pounds of quartz finely powdered and dry, 22.5 pounds of borax (hydrate), 7.5 pounds of fluorspar finely stamped and ground—80 pounds together. This mixture is calcined in fire-clay crucibles, and produces 68.5 to 69 pounds of calcined mass, which is cleaned from adhering clay pieces, broken up and stamped. Of the stamped mixture up and stamped. Or the stamped mixture 32 pounds are mixed in a dry state with 13 to 25 pounds of quartz (generally 25 pounds), 8 to 13 pounds gray clay (generally 8 pounds) and 1 pound of borax. This new mixture is ground wet in a crushing mill, and to each such lot, which fills the mill pan, prounds of clay and 1.5 to 1.5 to 1.5 pounds. pounds of clay and 1.25 to 1.5 po orax are added during the grinding. then brought to the required consistency by the addition of water, or of gray clay finely ground with water. The pots are coated ground with water, or or gray clay finely ground with water. The pots are coated with this, dried and heated in muffles till the coating has baked together. It forms a vellowish brown body, which must firmly adhere to the pots, and not come off when scratched with the finger nail.

After cooling, the pots are coated with the second or enameling coat, which is likewise put on as a finely-ground and sifted wet paste. It is prepared in this way: A dry mixture is made of 5 pounds fluorspar finely stamped, 2 pounds oxide of zinc, 9.5 pounds oxide of tin, 1.5 pounds bone flour, .06 to .10 value, pound smalt (a cobalt blue glass). The latter bushing is only added to cover a yellowish cast of the is only added to cover a yellowish cast of the enamel, and varies in quality according to the differences occurring in the spars and clays employed. This mixture is prepared in the laboratory, as the most important, and forms the chief secret in the various works. To it are added 32 pounds finely ground feldspar, 19 pounds to 19.5 pounds borax hydrate, 615 pounds soda hydrate, and 2.5 pounds to 3 pounds potash saltpeter. Those ingredients are melted in crucibles having holes in the bottom, through which the molten mixture flows into a receptacle placed under the grate. After cooling, it is coarsely broken, cleaned from athering impurities, and then stamped. Of the stamped purities, and then stamped. Of the stamped mass about 60 pounds are fed at once on the crushing mill and ground wet, and during the grinding about 6 quarts of white clay, finely slacked in water, and .5 pound to .75 pound of oxide of zinc are added. The mixture is brought to the required consistency by a ing water while grinding, and painted on the previously grounded pots, which are then heated till the enamel becomes fused. A solution of carbonate of ammonia or sulphate of magnesia is added in some places, but not

The burnt pots must show no blisters, and the enamel must be of a uniform bright white without streaks. They are examined while still hot, and separated into "firsts" or fault-less ware, and "seconds" with small de-fects, and blacked outside with coal tar. Those showing larger faults or blisters are left to cool, and the defective parts of the enamel cut out with small sharp-pointed enamel cut out with small sharp-pointed hammers, after which these places are re-coated and the pots have to go again through the enameling process. The works we are speaking of produced 700 to 800 tons of enameled hardware per year, and em-ployed in this branch 20 men for pickling, scouring, coating, smelting, burning (day and night), and blacking, besides 7 laborers and 5 lads for transporting the pots. The process of smelting the enamel in crucibles, as described above, was formerly exclusively employed, and is still in use in the great maority of works, the furnaces being similar brass founders' furnaces, and using coke as fuel. As in other smelting operations, so in the preparation of enamel, a desire to do away with the crucibles and employ other ploying 3000 men, are in full blast.

kinds of fuel than the expensive coke has made itself manifest, especially in some parts of the Continent where coke is very dear and lignite is cheap and abundant in the neighborhood of the works, as in Lower Silesia. The problem has been satisfactorily solved, and furnaces for smelting enamel for cast iron and for standard works. for east iron, and for stamped wrought-iron pans fired with lignite and coal, are at present at work. We add some particulars of the newer process employed at a works in Rhenish Prussia, concerning which we have ome notes before us.

The works in question have two furnaces, one producing white and the other blue enamel for stamped wrought-iron pans. They are arranged as regenerative gas furnaces, using coal as fuel, and oducing naces, using coal as fuel, and producing about 14 cwts. in 24 hours. Both furnaces are served by a common gas generator and one chimney. The method of working is as follows: The raw materials are well mixed and put into the furnace, about 4 or 5 cwts. at once. The flame passes over the mass similarly as in a glass furnace. After it is thoroughly melted, and has become perfectly liquid and the evolution of gases stopped, it is drawn off through suitable tapping holes and made to flow into cisterns filled with water, by which it is chilled and converted into a coarse-grained powder suitable for being ground without further preparation. The cost of breaking up the mass ration. The cost of breaking up the mass obtained from the crucibles with holes is consequently saved.

Experience has shown that in this process a smaller amount of fluxes suffice, compared with the crucibles, without affecting the the cause of this is that in the furnace without crucibles, the material has to remain in the fire till it is completely melted and the fluxes have uniformly diffused themselves through the whole mass, which is as-certained by taking samples. When this point has been reached, the furnace is tapped. In the crucibles, on the contrary, each melted portion flows out at once, whether it has incorporated much or little of the others. A control of the incorporation of the fluxes is impossible, neither can it be influenced in any way. The hole in the bottom is there, and every portion of the contents runs out as soon as liquefied. In breaking up the enamel obtained from crucibles the fracture frequently shows different colorings, proving a want of homogeneousness of composi-tion, while the enamel produced by furnaces without crucibles shows a perfectly uniform color. In the preparation of a good enamel. and consequent reduction of faulty wares, cleanliness is a most important, and frequently a not sufficiently observed, condi-tion. By employing gas firing this is ful-filled in the best manner. The generators are placed outside the smelting and enamel-ing room; consequently, neither the raw ma-terials nor the prepared enamel come into contact with coal and coal dust. As the mass is run directly from the furnace into water, and has not to undergo any further manipulation before being ground, all chance of its becoming mixed with impurities in that state of manufacture is also avoided. Of course the cost of orucibles is also saved, and any cheap fuel can be used. The furnace itself, with the necessary working room before it, occupies a space of about 5 x 4 yards, and costs about £75, exclusive of the chimney.

In a general way, everybody who has kept posted in mechanical science knows that iridium has at last been fused so that solid masses have been obtained. The possibilities which this discovery of Mr. Holland opens are not, however, easily understood. The general knowledge of iridium is confined to the fact that it is exceedingly hard and gen-erally used for pen points. Since it can be ob-tained in small bars and sheets and of considable size, it has been found that it can be applied to an immense number of uses in the For the knife edges of fine scales and balances it is likely to be of the very highest value, and also for bearing surfaces and bushings in instruments of precision. It is also applicable to draw-plates, and we

The Pratt & Whitney Co. recently re-ceived the award of the John Scott Legacy Medal by the city of Philadelphia, upon the usual recommendation in such cas Franklin Institute. The medal is for standard gauges, taps and dies. The award, we understand, was not only unsolicited, but unexpected. The high ground which has been taken in awarding this medal makes it an honor well worth seeking, and it has done much to encourage progress in the mechanical arts. The medal is of bronze, 4 inches n diameter. In the border are the words 'Awarded by the City of Philadelphia," and in diameter. on the reverse a wreath of laurel and the words "The John Scott Medal—To the Most Deserving." Within the wreath is engraved beserving." Within the wreath is engraved "To the Pratt & Whitney Company, Hartford, Conn., for their Standard Gauges, Taps and Dies, upon the Recommendation of the Franklin Institute.'

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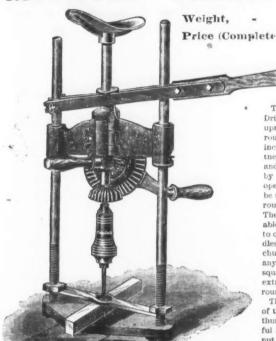
HARD TIE

F

R

A bill has been filed in Chicago against A bill has been filed in Unicago against Herbert C. Ayer and a number of railway companies by the Otis Iron and Steel Co., of Cleveland, Ohio, to prevent them from paying over any moneys to Ayer or the Union National Bank. A similar bill has been filed by the Standard Steel Co., of Lawiston Pa. Lewiston, Pa.

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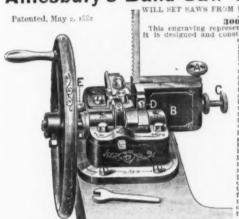
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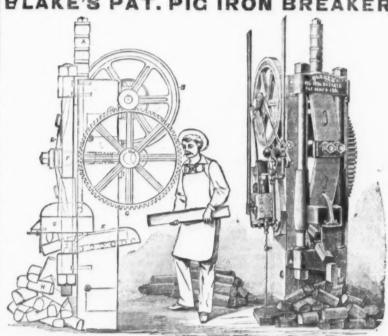


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#### WASHINGTON LETTER.

(From Our Own Correspondent.) WASHINGTON, D. C., March 7, 1883.

The revised tariff act of March 3, 1883, after considerable effort on the part of those who were favorable to some action on the fore important questions of revenue reduction and tariff revision and on the most favorable terms, is now a law. In its original shape as a measure to reduce the revenues rom inter-nal taxation, it passed the House during the last days of June of last year, and after much discussion in the Senate, especially on the amendatory proposition covering a revision of the tariff, was passed there and returned to the House, with the result now known. A succinct review of the various stages in the progress of this important measure will not be uninteresting.

THE APPOINTMENT OF A CONFERENCE. The Speaker having named Messrs, Kelley, McKinley and Haskell, Republicans, and Randall and Carlisle, Democrats, members of the Committee of Conference, on the part of the House, on the bill to reduce internal revenue, Mr. Randall on the following day, February 28, in a few remarks asked to be excused from service on the committee. This request occasioned much surprise, as it was presumed that Mr. Randall would be auxious to give his personal attention to the great industries of his State, and particu-larly as his colleague, Mr. Carlisle, was an outspoken advocate of free trade. Mr. Randall gave no substantial reason for the request, so that the inference was that his action was influenced solely by his candidacy for the Speakership and the effect that his action on one side or the other of the tariff question might have upon his chances of question might have upon his chances of success. The House having excused Mr. Randall, the Speaker named Mr. Morrison, another out-and-out free trader, but he declined. Mr. Tucker, another free trader, was named, but he, "as the third appointée," also declined. The fact that Mr. Morrison was another of the leading candidates for the Speakership and wished to dodge the issue afforded much amusement.

MR. SPEER, OF GEORGIA. The Chair subsequently named Mr. Speer, of Georgia, to fill the vacancy on the Conference Committee. Mr. Speer, though a Democrat, has always held an advanced position with respect to the interests of the South. He has been the consistent friend of protection by acting thus, regarding him-self as influenced by a care for the growing manufacturing interests of his own State and the country. This left Mr. Carlisle alone on the committee representing the suicidal policy of free trade.

AN EFFORT TO RECONSIDER.

When a formal announcement of the members of the House Committee was made to the Senate, an effort was made by Mr. Garland to reconsider the vote by which that body agreed to a conference. The members body agreed to a conference. The members of the Senate branch of this committee were Mr. Morrell, chairman; Mr. Sherman and Mr. Aldrich, Republicans, and Messrs. Bayard and Beck, Democrats. As thus con-Bayard and beek, Democrate: As this constituted, the committee was classed: For protection as such, Mcssrs. Morrill, Aldrich, Sherman, Kelley, McKinley, Haskell and Speer; for moderate protection, Bayard, Democrat; for free trade, Beck and Carlisle, Democrats. Pending the discussion of the motion in the Senate to reconsider, Mr. Bayard suggested that if the committee on Bayard suggested that if the committee on the part of the Senate found the conferees on the part of the House handicapped by any restrictions, that the Senate conferees should report that it was not a free conference. This precaution hal reference to the action of the House in denying the power of the Senate in the matter of passing a revenue bill which had not originated in the House. The Senate then drifted into a tedious discussion as to drifted into a tedious discussion as to whether the conference was free or not. Mr. Morrill did not regard it as of any consequence, as both houses had power to instruct their committees, and after wasting much time the motion to reconsider was mithdrawn. Subsequently Mr. Bayard made an explanation of the withdrawal of himself and his colleague, Mr. Beck, from the conference. This action, it appears, was from no motives of interest in securing a tariff, more favorable to the protection of tariff more favorable to the protection of American industry, but simply on the tariff more favorable to the protection of American industry, but simply on the quibble that the conference was not a free and full conference on the part of the House conferees, in view of the resolution of the Senate that if any limitation had been placed by the House upon the action of their conferees, the Senate conferees should retire and report to the Senate conferees should retire and report to the Senate conferees took this view of the situation—that the House members could not confer fully and House members could not confer fully and freely with relation to the amendments of the Senate. These gentlemen being excused from serving on the committee, Senators Vorrhees, of Indiana, and McPherson, of New Jersey, and Mr. Harris, of Tennessee, also declined. After making up the committee again, the consideration was amicably carried on and carely declined. carried on and concluded.

EFFORTS OF FREE TRADERS IN THE SENATE. When the report of the Conference Com ittee was submitted to the Senate, Senator ock and others made a determined effort to defeat its adoption, and very nearly suc-ceeded in their attempt, the vote standing 32 yeas, 31 nays. Senator Morrill, the chairman of the committee, fully explained the bill as submitted. That portion relating to internal revenue reduction repeals the taxes on banks and bankers, whether State or national, except the tax on circulation of national banks-that is retained. The stamp tax on bank checks, matches, perfumery and patent medicines in abolished. The tax on dealers in tobacco is reduced, but no change is made in the provision that producers may sell tobacco at retail to amount not exceeding \$100 annually. The tobacco tax is reduced from 16 to 8 cents per pound, and the same rate of reduction on cigars and eigarettes. This part of the act goes into effect May I instead of July 1,

customs \$32,000,000, or an aggregate of \$75,000,000 on prices as they now range. CLOSING SCENES IN THE HOUSE,

The members of the House had determined The members of the House had determined to adopt the conference report without any useless delay, and therefore objected to any speech-making. Two hours were therefore allotted as a liberal allowance for that purpose. Kelley, Haskell and Kasson spoke in favor of the bill. Springer, Morrison, Cox and Tucker gave their views rison. Cox and Tucker gave their views why, as free-trade Democrats, they would vote against the bill. Speer, of Georgia, and Wilson, of West Virginia, explained why they voted for it. In this manner the time was consumed—that is, more in the form of personal explanations of from about 25 members, stating their reasons for voting for or against the bill.

THE VOTE.

At 5 p. m. the vote was taken, and as an evidence of the intense interest in the result, a large number of the Representatives had secured tally sheets and kept the vote as it progressed. The result indicated 129 Republicans, 20 Democrats and 3 Green-backers in the afirmative—total, 152; and of Democrats, 13 Republicans and 7 Green-backers in the negative—total, 116.

THE BILL BECOMES A LAW.

At 2.35 a. m. the tax and tariff bill, signed by the Speaker, reached the Senate from the House of Representatives, whereupon the President pro tempore of the Senate also signed it. This important piece of legisla-tion was then submitted to the President, who occupied the Executive Apartments near the Senate Chamber, and promptly received his approval. Some are disposed to think that the present bill was rushed through with undue haste. That this is not the case is instanced by reference to the history of the great tariff acts. The Clay Compromise the great tariff acts. The Clay Compromise and the free-trade tariffs of 1842, 1846 and 1857 were passed with one-third the debate and not a fractional part of the information which was brought to bear on the subject during the consideration of the tariff act of March 3, 1883. It is a singular coincidence that Senator Morrill drew up the first really protective tariff system and prepared the revision just passed.

THE TARIFF VOTE.

An analysis of the vote on the tariff bill shows where the interests of protection are supported best. The solid New England delegation, with one exception, voted for the bill as the best that could be had. The Midbill as the best that could be had. The Middle States gave 47 votes for to 14 against the bill; the Western States, 55 for to 26 against; the Southern States, 22 for to 72 against, and the Pacific States, 4 for to 3 against. The large majority for the bill in the New England, Western and Middle States was chiefly Republican, while the majority against the bill in the Southern States was mainly Democratic. At first there was a disposition to criticise the bill, but as it was the best that could be had under the circumstances, as a rule the Senaunder the circumstances, as a rule the Senators and Representatives are beginning to

AVERAGE PER CENT. OF CUSTOMS DUTIES. The following is an interesting table for comparison of the average percentage of customs duties, under the administrations from 1701 to the present. The first column shows the rates of duty on total imports, and the second on inports for consumption :

There is danger that the vantage gained by the free traders will lead to a renewal of the effort, at an early day, to attack certain interests in the way of special legislation.

DUTY ON COTTON TIES.

The Secretary of the Treasury has issued to collectors and other officers of the customs official notification of the decision of the Supreme Court of the United States in the

THE KENNEDY CASE. In the case of Kennedy against Hart-ranft, Collector at Philadelphia, on the docket of the Supreme Court of the United States, the Government, since the decision in the Ranlett case, has given instructions to the collector to refund to Messrs. Kennedy the amount involved in the difference be-tween the duty assessed and the duty indicated by the Court. The question in this case was whether the article in question was a manufacture of iron or hoop iron, the duty on the former as cotton ties being 35 per cent., and on the other as hoop iron, from 1½ to 1½ cents a pound. The Government having ordered the refunding of the amount will lead to the withdrawal of that ase from the docket

### Death of William Fletcher.

The sudden death of Mr. William Fletcher, of the firm of W. & A. Fletcher, the successors to Fletcher, Harrison & Co., of West street, New York, which occurred on the 3d inst., will be deeply lamented in engineering circles both in this country and abroad. The immediate cause of death was acute peritonitis, resulting from a stoppage in the action of the bowels some 10 days before. Mr. Fletcher was born in Scotland, and came act goes into effect May I instead of July I.

AMOUNT OF REDUCTION.

The report on the part of the House showed that the reduction on internal taxation would be about \$42,000,000 and on

the first he was recognized as a clever mejudgment, which prevented him from committing blunders and guided him in working out new designs or improvements on old out new designs or improvements on old ones. The old shops on West and Vestry streets, this city, have been occupied by Mr. Fletcher for the last 30 years without inter-ruption. Shops and man alike have been known to the marine engineers not only throughout this country, but in almost every corner of the world where the American beam engine has been used. The firm of which he was for so long the senior member have furnished boilers and engines for the have furnished boilers and engines for the most notable steamers of the present and the past generation, among them the Albany, Vibbard, James W. Baldwin, Mary Powell and Sylvan Dell. In New York waters, at least, it has almost always been safe to say that the fastest paddle-boat affoat at any given time had an engine built by the Fletchers. The latest production of the firm was the compound beam engine of the City Fletchers. The latest production of the firm was the compound beam engine of the City of Fall River, built for the Old Colony Steamboat Co., which began running only a few days ago. This engine is the first of the kind built in this country for many years, and its arrangement, we believe, is an entirely new departure from anything hitherto put into paddle steamers. Although but to years of ago. Mr. Fletcher, had lived but 59 years of age, Mr. Fletcher had lived to see his firm complete its one hundred and fourth marine engine.

#### Weighing and Classifying Sheets of Metal.

The accompanying engraving represents a kind of scale in use in France for classifying sheets of zinc. Its equivalent might be used with advantage by every rolling mill in the country in classifying sheets of iron before bundling. Further, it will be found advantageous to employ by consumers in order to correct manufacturers' invoices, as we have above narrated, when necessity arises. The above narrated, when necessity arises. The apparatus consists of an iron standard upon the Amalgamated Association, met the St.

fortunately the resistance of the water has whether, if the torpedo is once successfully discharged, its course can be predicted with any degree of certainty. If it should happen to move in a half-circle and strike the Poly phemus bow on, it might prove its efficiency in a most inconvenient manner. New boilers are to be put into the vessel, but in order to do this the old ones must be taken out, and it is a question whether it will be cheaper to cut a hole in the bottom or break up her decks for that purpose. As the vessel has a complete armor deck, some engineers think it will be better to remove the old ones through the bottom. When the boilers were in good humor and did not prime very badly, this 240-foot ship made 15 knots per hour. On a trial trip, by bottling-up steam, 17½ knots were made. So far the trouble in attaining a high speed has been with the boilers, which are of the locomotive type and have primed most vigorously.

#### LABOR AND WAGES.

Notices were posted last Saturday at the the furnaces of Reis Bros., Raney & Berger and at Rosena Furnace, Newcastle, that beginning with Sunday, March 4, 1883, the following schedule of reductions would take effect :

As a reason for this reduction the em-ployers assign the fact that the firms men-tioned have been heretofore paying more

Eighty molders of the Stearns Mfg. Co. Erie, went out on a strike last Saturday be-cause a non-union molder had been employed and the company refused to discharge him

for the classes of work instanced than has ruled in other establishments.

Scale for Weighing and Classifying Sheet Metal.

which is mounted, by means of a socket, a Louis strikers at Gillick's Hall and addressed cast-iron, graduated, quarter-circle sector, which has a curved arm from which is suspended a fulcrum on which oscillates a counpended a fulcrum on which is mounted, by means of a socket, a Louis strikers at Gillick's Hall and addressed them. He reviewed the situation and advised them. terpoised lever. One of the extremities of the latter forms an index, and the other supports a wire frame acting as a scale pan. When a sheet of metal is placed on the horizontal supports of this frame, the needle indicates its weight on the dial, and also the number of the series in which it should be classed, according to the dimensions marked

at the head of the graduation.

At first thought it may seem a matter of small importance, this question of accuracy in sheets of iron, but where 50 bundles per month, for example, are consumed, varying, we will say, one ounce per square foot from guage, a discrepancy that is not at all unusual, the difference is sufficiently great to warrant an investigation. Fifty bundles per month is small consumption, compara-tively speaking, for a number of concerns that might be mentioned use more than the per week. Basing our calculation on iron 30 by 96 in size, say ten sheets per bundle, a variation of one ounce per square foot would make a difference of 200 ounces per bundle, or 1214 bounds. Carrying the calbundle, or 12½ pounds. Carrying the cal-culation forward to cover the space of a year, there is a total of 7500 pounds. Sup-posing iron to be worth 8 cents per pound, we have \$600. This certainly is a matter worth looking after. There is no reason why consumers of sheet iron should not give attention to particulars of this nature. Car builders and mechanics in various lines have established sizes to which their iron and steel must be rolled, naming the maximum varia-tion that will be allowed. Material that fails of the standard named is rejected, and yet manufacturers do not hesitate to take orders subject to these conditions. If sheetiron workers, cornice men in particular, will investigate this matter, they may see wherein some of their profits slip by.

The English ship Polyphemus is supposed to be a ram pure and simple, unless, as an English engineer suggests, she is also a failure. The vessel is intended to discharge fish torpedoes from the bow and from the side, and has the torpedo tubes some 9 feet under water, but in the effort to discharge the torpedoes a very curious trouble has devel oped itself. When the vessel is going at full oped itself. When the vessel is going at full speed the 18-foot torpedoes are jammed fast by the vessel's motion through the water as soon as they stick their noses outside her huil. If by extraordinary exertions they are finally got off, the screw, or stern, or tail, is bent or twisted, and the course the tail, is bent or twisted, and the course the torpedo then describes is a most erratic one. As a remedy, a plate 16 inches wide and 25 feet long has been placed as a sort of fender in front of the torpedo opening, and in the lee of this the torpedo is discharged. Un-

no matter what the provocation-with op-posing interests, and to conduct themselves as peaceable and law-abiding citizens. as peaceable and law-holding citizens. Unfortunately his advice was not followed, and the rioting a few hours after the meeting was even worse than on the preceding day, the violence of the men being chiefly directed against S. A. Sherman, an ex-police officer, now employed in the converting department of the mills, who saved his life by his fleet-ness of foot. Several rioters were arrested.

The molders strike at Philadelphia still continues. Molders at Caer & Crowley's say they did not receive notice of a 10 per cent. reduction of wages until three days after it went into effect. The firm say otherwise. The men are on the strike for full pay, and 65 are out. All the rest, 175 in number, accepted the reduction. The strikers held a meeting and formed a union. One of the firm says that four have earned from \$20 to \$23.60; eight from \$17 to \$19.50; 19 from \$15 to \$16.87, and six from \$13 to \$14.42. He also stated that the firm have notified the hands to return to their work on Tuesday, The molders strike at Philadelphia still to their and if they fail to respond they may consider themselves finally discharged. The men say they will not go in until their full wages are given, and they declare that the firm can get o other molders

Last Saturday forenoon a general meetdisinclination toward resuming work until they had received the money for labor already performed. This meeting was called for the purpose of talking the situation over, and, if necessary, to adopt measures looking toward their future action. Manager Williams made a statement to the assembly of the condition of the firm, and assured them that everything was being done that could be by Receiver Brown to free Brown, Bon-nell & Co. from their embarrassments, and that nothing could insure the success of his endeavors any more than the hearty co-operation of the employees. This statement, gether with the assertion that it was now expected that the men would be paid in full within a few days, checked any tendency among the men toward dissatisfaction, and the meeting adjourned in good humor.

Classifying Scrap Iron,—Referring to what appeared under this general title in The Iron Ape for February 15, a correspondent from Detroit writes as follows: "Allow me to make one suggestion in re-

scrap iron. When loading scrap the best chanic, and the thoroughness with which his work was done was a characteristic of his whole life. He had a sound mechanical out of the ship. It seems to be doubtful car, and the large, if any, on the other. This plan from experience I think is much better than putting the large on top.

#### The Iron and Metal Exchanges.

As a result of recent conferences between embers of the two Iron and Metal exchanges, committees have been appointed by both organizations to consider the expediency and practicability of consolidating all interests under a single management. The advantages of greater economy and unity of action in whatever pertains to the gan-eral welfare are among the points submitted for consideration. It is a favorable omen that the two committees in their initial steps acted simultaneously, so that neither body is entitled to credit or liable to invidious reflection in making the first overtures.

#### TRADE PUBLICATIONS.

Hotchkiss Mechanical Boiler Cleaner.

A little pamphlet describing the uses and advantages of the Hotchkiss mechanical boiler cleaner is at hand. As most of our read-ers know, this is a surface blow-off whose operations are in one sense continuous. The dirty water is by a system of circulation operations are in one season of circulation made to pass through a cleaner or sediment trap, and the impurities left behind it. When the blow-off takes place the impurities are removed from the reservoir. Difference of removed from the reservoir. Difference of temperature is depended on to keep up an automatic circulation. After a careful and well-illustrated description of the apparatus has been given, and some space devoted to testimonials, about 30 pages of matter relating to the use and care of steam boilers is given. There are also some useful tables in regard to the proporties of steam soft-working. to the properties of steam, safe-working pressures, indicated horse-power, effectual heat and dimensions of iron pipe. It is published by Mr. J. F. Hotchkiss, 84 John street, New York, who sends it on application to any address.

Pumping Engines.

The Cope & Maxwell Mfg Co., Hamil ton, Ohio, have issued a catalogue of their pumping engines, steam pumps and hydraulic machinery. Upon the title page they call attention to the fact that this is their seventeenth annual catalogue. It is one of the most elaborate which we have seen, and besides containing very beautiful perspective views of all their leading varieperspective views of all their leading varieties of pumps and pumping machinery by Bogert, of Cincinnati, also contains very carefully made sectional drawings of a large proportion of all the engines which they make. The printing throughout is beautiful, and the catalogue ranks among the most largeious which we have seen. The firm and the catalogue ranks among the most luxurious which we have seen. The firm make almost everything in the way of pumping machinery which can be imagined, from the smallest semi-portable boiler and tank-pump combined, to the largest size of compound and Worthington pumping engines. Some of their pumps for water works are provided with fly-wheels and some are direct-acting. Their isochronal engine is somewhat of a novelty, combining the principal features of the Worthington with those of the isochronal. In other words, the of the isochronal. In other words, the pumps can be run duplex, like an ordinary Worthington, or each can be operated singly, in which case the valve motion is under the control of a cataract apparatus. The arrangement is similar to that of the Worthington. The list of vertical, mining, deep well, artesian well and vertical sinking pumps is exceedingly large, and the details which they give are very interesting. One of the most unusual forms of pumps illus-"Steamboat Doctor." This is a double cylinder, double crank, bucket and piston pump combined in one—that is to say, there are two steam cylinders, two bucket pumps and

OF

1

MERR

two plunger pumps.

From the engravings we judge that every valve throughout the machine is accessible valve throughout the machine is accessible without breaking any of the connections. As the work is done entirely on the down stroke, the plunger of the pump is carried upward full size, so that the area of the lower side of the piston is very small, and a correspondingly small quantity of steam is used on the up stroke when no work is being done. The catalogue contains one feature which is worthy of imitation. On the second page an illustrated index of the pumping machinery is given. This consists of a series of very small cuts of each of the different styles of pumps. Beneath the cut the name of the pump and the page where it may be found is given. This enables one to find any particular style very easily, even though the name may have escaped memory. may have escaped memory.

### Bolts and Spikes.

Messrs. King & Perot, of Philadelphia, Pa., have sent us their price list of bolts, Last Saturday forenoon a general meeting of all the men employed by Brown, Bonnell & Co. was held in Youngstown and was largely attended. There has been among a portion of the employees a disposition to complain at not being paid, and a disinclination toward resuming work until tached. The firm have adopted as their standard thread the United States (Franklin Institute) standard, and all bolts and nuts made at their works will be cut to these gauges; in case any other threads are desired, intending purchasers should state it in their orders. The two last pages of the catalogue contain illustrations of rods and in their orders. bolts for roofs, and irons and straps for buildings, &c.

The Duncannon Iron Co., of Philadelphia, Pa., have sent us their catalogue, comprising 15 pages, and containing a large number of en-gravings of different kinds of nails. Among these we would mention grip, fencing, finishing, casing, slating and box nails, clinch and bolt nails, &c., together with a large variety of spikes. Each engraving is numbered and is referred to in accompanying tables, which give the sizes, number to the pound, and prices for each individual type of nail or spike. The company also give a fist of iron made by them, which is turned out in round, square

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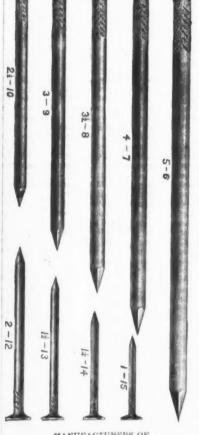
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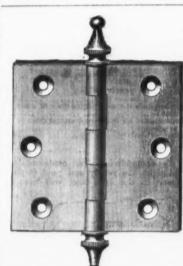
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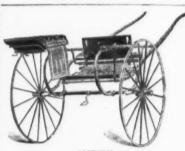
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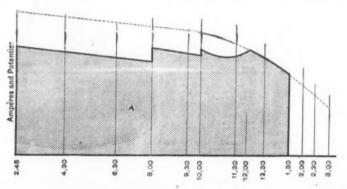
#### The Faure Accumulator.

BY THERMO.

A great deal has been heard of late of the Faure accumulator or secondary battery, and through some misapprehension its functions and uses are little understood outside the circle of scientific men. For these reasons a short dissertation on this invention will not seem out of place. The function of the secondary battery is precisely similar to that of a reservoir. It is well known to the readers of The Iron Age that in places where water is plentiful and power is required intermittently, the cheapest mode of obtaining this power is to build a reservoir and use a pump to force the fluid to the receptacle, thus imparting to potential energy or giving it power of ong work. This energy in the form of oad can be utilized at any time desired, either by a water wheel or by actuating the piston of a water-pressure engine. The ad-vantages gained by this system are a saving vantages gained by this system are a saving in initial cost, by the difference between the cost of an engine large enough to accomplish the work at any instant of time, and secondly in a saving of fuel, since, if we were using a steam engine, we should be compelled to keep the pressure in the boiler at such a point as to be able to run an engine at any moment up to the maximum amount. at any moment up to the maximum amount of work required. By the method here indicated, however, we are enabled to use a

instruments employed in this experiment, which began on January 4, 1882, at 10 a m. By way of explanation it should be said that A is a Siemens dynamo, excited by a derived circuit; B are Faure accumulators; C, exterior circuit resistance box; D, Deprez galvanometers, giving total current both of charge and exciting current to dynamo; E. charge and exciting current to dynamo; E, Siemens electric dynamometer; F, Weber meter, deposition of copper method; G, Sir William Thompson potential meter; H, reflection electrometer, Mascart. The power was transmitted to the Siemens dynamo by the intermediary of a dynamometer, the readings of which, calculated according to the usual formulæ, are given in the subjoined table

As the Siemens machine was not con structed for this kind of work, it was neces sarv to introduce a resistance in the exciting current, which, not being absolutely neces-sary in the system, ought to be deducted from the total of work expended. The arrangement of the diagram sufficiently explains the object of the various instruments. It will suffice to add that the deposition of copper in the Weber meter F



The Faure Accumulator.—Fig. 1.—Diagram Representing Work Done by Battery in Discharging in a Given Line.

our reservoir to accomplish our work at any instant. This is precisely what is done by an accumulator. In effect the battery is like a reservoir, but it must not be supposed that the electricity is pumped into and stored in the battery as water in a reservoir. By using a small engine continuously for 24 hours, we are enabled to accomplish the same work as would be done by a large engine running only a portion of the time. same work as would be done by a large engine running only a portion of the time. The underlying principle of all secondary batteries or accumulators is a chemical one, and depends on a thorough change in the nature of the substances employed. The active agent in inducing this decomposition is the charging output. position is the charging current, or the current from the dynamo used to charge the battery. This decomposition is always of an oxidizing nature at one pole and of a reducing nature at the other. Now, when the accumulator is relieved from the charging current, another chemical chango takes place, the oxidized pole is reduced and the reduced pole is oxidized, and hence a con-

reduced pole is oxidized, and hence a converse current to the charge is induced.

The Faure accumulator consists of a rectangular water-tight box about 20 x 8 inches, and 12 inches high. This box is partly filled and 12 inches high. This box is partly filled with dilute sulphuric acid in such a quantity that when the plates, to be hereafter described, are placed in position, they will be covered by the fluid to a depth of about 1/4 inch. The plates are composed of 1/4 sheets of lead of such dimensions as to fit snugly into the box. These sheets are perforated with a number of 3-16ths-inch holes. One side is then covered with a layer of red lead mixed with a cidulated water. holes. One side is then covered with a inyer of red lead mixed with acidulated water. Over this a covering of parchment is placed, after which the plate is reversed and the other side is similarly treated. When both sides are completed a cloth jacket is sewn around the finished plate, and but a small portion is left bare to serve as an electrode. The 14 plates are now placed in the box, one-half of the number connected with the positive and the other half with the negative terminal post. The accumulator is now ready for charging, which is done by connecting the terminals with the wires from a dynamo. This being done, the red lead on the positive plate changes to the lead on the positive plate changes to the result more uniform. This was easily accomplished by the simple movement of a switch.

During the first experimental discharge, respirely referred to the same system had the positive and the other half with the peroxide of lead, while that on the negative is reduced to a spongy metallic state. When this transformation is complete the accumulator is ready for work, and can be applied for running machines of various kinds or to furnish electricity for illuminating purposes. To give a clear idea of the nature of the energy in the accumuthe nature of the energy in the accumulator, we may again resort to our previous analogy between the cell and the reservoir. We can determine readily by the well-known relation between work and heat the theoretical amount of water we should have pumped, or, in other words, the total amount of energy expended in forcing the west. energy expended in forcing the water of our reservoir. We are, however, alinto our reservoir. We are, however, already familiar with the fact that we accomready familiar with the fact that we accomplish but a certain fraction of our theoretical work in practice. This is due to the influences of friction, leakage, &c., and if we divide the actual by the theoretical work we obtain the efficiency of the apparatus. This efficiency, in the case cited, is rarely over 50 per cent. This is also true of our reconstructors, we cannot obtain from it the accumulator; we cannot obtain from it the same amount of work which was introduced It varies with the rates of charging

Having now given, in brief, the theory and construction of this invention, I will give in detail the methods and results of an give in detail the methods and results of an exhaustive test made at the Conservatoire des Arts et Métiers, in Paris. by the well-known scientist, M. Tresca, assisted by a corps of well-known scientific men The accumulators, 35 in number, were of the laboratory type—that is to say, constructed of round earthenware pots, 10 inches in diameter, weighing with the necessary water about 67 pounds. These have been shown

small boiler operating pump at such a con- always corresponded with the readings given stant speed as will give us sufficient head in by the other instruments. The electro-motive our reservoir to accomplish our work at force of the accumulator, when charged, has been found to be 2.15 volts.

No. of hours.	Total w'k	W'k p'r sec., ft. lbs.	Total current ampè's	Mean current	Poten- tial.
536 7 714 234	16,545,000 19,792,500 21,170,000 8,192,500	885 783 805 791	67 50 59 1716	13.18 7.15 7.89 6.48	36 39 39 39
2234	65,700,000				

The resistance mentioned above as having been introduced into the exciting circuit of the dynamo on account of the too weak re-sistance of the electrodes, had been measured and calculated at 72½ foot pounds. This amount of work having been thus expended, leaves the average work per second at 740.95 foot pounds. The potential reading of 37.75 corresponds to 87 volts for a battery of 35 cells under charge, which gives an effective electrical work of 540.1 foot pounds for an initial work expended in the machine of 740.95 foot pounds, and consequently a return of 72 per cent., which might cer-tainly have been improved on, and which is accounted for by the great rotatory speed of the machine (which made an average of 1060 revolutions per minute) with the small return obtained from it. The discharge of the battery was made in two different operations, with an interval of 36 hours between them. It began at 2.45 p. m. Saturday, January 7, and was continued until 10 p. m. It recommenced on Monday morning p. m. It recommenced on Monday morning at 10 a. m., and was finished at 3 p. m., but so far as the experiments made with the light were concerned, it finished at 1.30 p. m. During the discharge the desire of realizing as far as practicable a uniformity of luminous work produced a certain amount of confusion, but if the theoretical result is a little affected by this, the practical result obtained is of the greatest importance. At the commencement the battery was disthe commencement the battery was dis-charged in a series of 30 cells, adding on the

previously referred to, the same system had been carried out, commencing with 30, then 32, and lastly 35 cells. It is easy to compute by this calculation what would be the curve of this discharge if they had begun with 35 cells. It is shown in the diagram (Fig. A) by a dotted line. Diagram of the decrease of work:  $\Lambda=30,595,000$  foot pounds. During the discharge the instrument occupied the same position as during the charge, but there were II Maxim lamps, one of which was placed in a dark room with the

Time of the day.	Current in Ampères,	Potential roadings.	Remarks.
2.43 p. m. 2.45 4.30 6.30 8.00 8.05	0 16.37 16.37 15.68 15.49 16.70		30 cells discharging.
9.30 10.00 10.00 <b>8</b> . IB.	16,24 16,06 0 16,52	26.5 26 28.5	32 cells discharging.
10.15 11.30 11.35 12.30 p. m.	17.74	25.7 27.9 26 23.9	35 cells discharging.  The principal experi
2.00	13.85 13.20	13.85	

by M. Tresca to possess a higher resistance to about 178, which gives an effective return by M. Tresca to possess a higher resistance than those of the industrial type, such as are employed on railways, &c., where it is necessary that the charging and discharging should take place in but a relatively short time.

Fig. 2 represents the distribution of the instruments employed in this experiment, 1.882 at 10 a. m. the battery a work represented by a mean current of 8.5 ampères per second during carbon experiments. 22 hours 45 minutes, on an average potential of 85.5 volts, which represented a work of 43,645,000 foot pounds, or a return from

accumulator of  $\frac{30,595,000}{43,645,000} \times 100 = 70 \%$ . Now, as the efficiency of charging = 72 per cent., and the efficiency of discharging = 70 per cent., we find that the total efficiency of the apparatus = 70 per cent. of 72 = 50.4 per cent.; in other words, we receive about 50 per cent. of our original work.

50 per cent. of our original work.

The results of this experiment appear to be highly satisfactory, but the writer has been unable to find any record of test in which the efficiency of apparatus has been shown to be as high as in this. Another interesting point in this immediate connection will be to determine exactly what is the "commercial efficiency" of this apparatus.

Let us suppose a case and determine how Let us suppose a case, and determine how much we could afford to pay for a secondary battery to illuminate a stationary plant of 100 of Maxim's lamps of six-candle power. Suppose we take, as a basis, that ten of these lamps can be run to one horsepower; we then require for this plant a 10-horse-power engine and boiler. This plant would run, on an average, 12 hours per day for 365 days, or 4380 hours per year, and would require, probably, eight pounds of coal per horse-power per hour, making for the

yearly consumption  $\frac{8 \times 10 \times 4380}{175.2} = 175.2$ 2000 tons. Hence the yearly expense would be 175.2 tons of coal, at \$5 per ton \$376 oo interest on cost of engine and boiler (\$1000 at 4 per cent) 40.00

Depreciation of engine and boiler (\$1000 at 100.00 at 100 Total annual expense......

The interest on initial cost of the dynamo is not taken into account here, as about the same size machine would be purchased to run a series of lights for 12 hours, of an efficiency = 1; as it would be used to charge a series of batteries where the charging loss

a series of batteries where the charging loss
= 30 per cent., or of an efficiency = 7-10.
As for our accumulator plant, from a
series of experiments made by Sir William
Thompson in England, the writer finds it
would require about 400 accumulators of one horse power each to run the 100 lights in question. Taking the efficiency of these one-horse-power cells for charging and discharging at 50 per cent., we find we must exert during our 24 hours of charging about 600 horse-power. This would really require ar engine which is rated at one horse-power. These small engines are decidedly wasteful. This would really require an the writer has never found one to accomplish its work on less than 12 pounds of coal per horse-power per hour, and the amount of coal then required will be

As the engine is to run continuously day and night, the yearly sum paid to the en-gineer, in the first case, will have to be

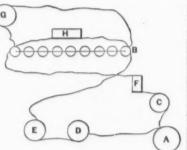


Fig. 2. - Arrangement of Instruments in Tresca's Experiments.

doubled, as it will be found necessary to emdoubled, as it will be found necessary to employ two men. It will thus be seen that there is no margin left us to pay for the interest on the initial cost of our 400 accumulators, and, therefore, unless the efficiency of the entire system can be increased turned. we cannot commercially recommend the system as a matter of saving to any plant. If a station were built where a great num-ber of accumulators could be charged at once, from dynamos driven by a large, economical engine, and we could realize the same percentage of our initial energy as was done in Tresca's experiment, there seems to be no doubt that such a system could effect a considerable saving to a number of users of the system of isolated plants now strata, the croded valley is bordered on each strata.

1st. In the place of a number of isolated, comparatively small engines, the power would be generated in one large engine at a considerably reduced cost per horse-power.
2d. The saving in engineers' salaries,

where no engineer is commonly employed.

Another important feature of a central charging station system would be the increased safety to the user, in not being compelled to have a boiler on his premises.

These last considerations would not apply where a consumer who is already using power could, either by carrying his steam pressure higher, or by alteration of the en-gine valves, obtain his dynamo power readily and cheaply.

In reference to the application of the Faure system to vessels, railroads and the like, we must, in our determinations of efficiency, discover whether the cells would occup more or less room and weight than a regular engine plant. If the space required is less, we gain a manifest advantage in that direction. as space, more particularly in ocean-going vessels, is a consideration of prime importance. To this gain we must couple the advances of the space of

vantages before indicated, making a very favorable showing. If the space required is greater, we must determine its commercial value in dollars and cente, and determine whether or no the advantages before spoken of are sufficient to balance this cost. In situations where water-power is readily obtainable, a new advantage would be gained by the use of accumulators. The actual by the use of accumulators. The actual cost of operation of a plant of this kind would be small, being but the salaries of attendants. The interest on investment would, if the fall or head of water be natural, become much less than that of an engine and boiler plant. The manifest advantage to be gained in this case would be found in the charging of the cells with but small expense, and of their discharging in a locality where power is only obtainable by fuel consumption. In a locality such as is spoken of above, cells might be charged and then transported to a distant point where natural power cannot be had.

#### Coal and Iron in Alabama."

BY T. STERRY HUNT, LL. D., F. R. S.

The following extract from this interesting paper is herewith presented to our readers. Doctor Hunt opens with a review of the scientific work done in that region by Professors Porter and Brumby, and later on by Professors Tuomey and Eugene A. Smith, and also calls attention to the valuable investigations made by Mr. R. P. Rothwell, which will be found in the Proceedings of which will be found in the Froceedings of the American Institute of Mining Engineers, Vol. II, pp. 144-157. Doctor Hunt then proceeds to give an outline of the character-istic features of the geological formation of the region, and after discussing the different

subdivisions of the same, continues:

If, now, we turn from Pennsylvania to
Alabama, we find that this great series of
strata, which we have included in our third division, is reduced in thickness from 18,000 feet to 1000, or in places 1600 feet, consisting, moreover, in great part of soft and calcareous rocks. As a result of this, the limonites, the fossil ore and the coal, instead of being separated from each other by great belts of mountain-forming strata, are brought side by side in a comparatively level country, and are thus presented under conditions extraordina-rily favorable for mining, manufacturing and transportation. The coal measures themselves, which constitute our fourth division, have suffered no apparent diminution in thickness. They are estimated in round numbers at 3000 feet in Pennsylvania, and are probably not less in Alabama, where one section, hereafter to be noticed, measures, according to Professor Smith, not less than 2600 feet. The outlying valleys already mentioned are eroded anticlinals, often accompanied with dislocations of the strata, and in them are exposed the fossil ores and still lower limonites. The Long Valley, which extends from below Tuscaloosa by which extends from below Tuscaloosa by Birmingham northward, and in its lower and middle portions is known as Roup's and Jones's valleys, respectively, divides, as we have seen, the Warrior coal field from the Cahaba outlier on the east, the distance between the two coal fields being rarely over six or eight miles. In the upper part of the course of this anticlinal uplift, the strate of the third division are seen dispined. strata of the third division are seen dipping regularly beneath the coal measures on each side, but toward the southwest the beds have side, but toward the southwest the seas have been sharply folded and pushed over to the northwest side, producing a real inversion, so that all the strata appear dipping to the southeast. The lower carboniferous lime-stones on the western side of the valley thus lie below the Chazy and Trenton limestones, and these again below the still older rocks of the Knox group, the whole series being over-turned and folded upon itself. The struc-ture is further complicated in parts by faults, bringing up, on the east side, the older rocks against the lower carboniferous lime-

stones. As a consequence of these accidents, so well described by Professor Smith, some of the beds are in part concealed, and others are duplicated. Conspicuous among these are cherty ridges belonging to the second division and associated with the limonites. Still more marked are the rocks of the Clinton group, known in Tennessee as the Dyestone and in Alabama as the Red Mountain group, from the beds of red hematite or ore seen everywhere along its outserves here sharply out off and unfirmed by the observations of Professor Smith and myself. To the northward, where ect a considerable saving to a number of the system of isolated plants now strata, the eroded valley is bordered on each nmon throughout the country. The sav-side by a rim of the basal sandstones of the coal measures, the tilted edges of which are still higher than the undisturbed beds of the coal fields on each side. The result of this a consequence of this pecuniar drainage, we find that the limonite ores along the valley, instead of being buried in clay, as elsewhere is usually the case, are often laid bare, and form hillocks and ridges scarcely covered with soil.

The Warrior coal field is divided by Smith The Warrior coal held is divided by Smith into the plateau or table-laud region on the north and the Warrior basin proper lying to the south. The southward extension of the anticlinal, which in its eroded portion further north gives rise to Brown's Valley, raverses the field as a low ridge, and divides

Fork or Little Warrior River-is the best known, lying, as it does, between the anti-clinal just mentioned and that of Long Valley. A section between this valley and Locust Fork, described in detail by Professor Smith in his report for 1877-78, shows above the lower carboniferous limestone about the lower carboniferous nimescone account 2500 feet of coal measures, including a conglomerate at the base. This, from its proximate to the valley and to the railroad, is mity to the valley and to the railroad, is the part of the field which has been best ex-plored There are found in this section 12 plored There are found in this section 12 seams of coal of from 2½ to 7 feet, and having an aggregate thickness of 50 feet. Of these, five seams have been extensively mined. The strata are nearly horizontal, and affected only by slight undulations. The Pratt seam—the highest in the section which is now extensively mined about six miles west from Birmingham, yields 4 1/2 feet miles west from Birmingham, yields 472 1000 of coal with one shale parting. As mined at the time of my visit in February, 1882, from two stopes and a shaft of 250 feet deep, it was a shaft of 250 tons of coal was yielding from 1200 to 1500 tons of ceal daily, a considerable portion of which was coked at the mines. According to more coked at the mines. According to more recently published statements, the production at the Pratt mine has since been much increased. Several other productive creased. Several other productive mines are opened in adjacent parts of the same field. To the west of the division just described, the development of coal in the region drained by the Big Warrior River is not less considerable, the later surveys of Smith and others showing the existence of many excellent seams of good quality, measuring from 3 to 6 feet in thickness.

In its southern part, where the Cahaba field attains its maximum breadth of 12 miles, the measures are regular, and have a dip of from 6° to 10° along the western border, gradually increasing to 12° or 15' near Lily Shoals, on the river, and to 45° or many page to its eastern edge, where the more near to its eastern edge, where the strata along the great fault are sometimes nearly vertical. Further northward, about 30 miles from its southern extremity, where the Cahaba field is reduced to a breadth of of miles, the strata are somewhat crushed, and the upper measures, which appear further south, near Monte Vallo, are wanting. The field is here crossed obliquely by the Alabama North and South Railroad, along the line of which, according to Rothwell, are found nine workable beds of coal, measuring from 2 to 4 feet in thickness, and giving an aggregate of over 28 feet. In the wider and less disturbed parts of the field, further south, the disturbed parts of the field, further south, the coal seams are thicker. On Four-Mile Creek the same observer found eight seams, with an aggregate thickness of 38 feet, besides four higher seams in the Monte Vallo beds, equal to 12 feet. Along the eastern border of the field, however, the lower coals will be too deep for profitable mining. Besides the analyses of coals from this field given by Rothwell, an extended table of analyses of others from the Warrier besides analyses of others from the Warrior basin is given by Smith in his report for 1879-80, and it may be said, in general terms, that the coals from both these fields are equal to those from the more northern portions of the Appalachian basin. They present the usual varieties in quality and composition, some of them being dry-burning coals, others coking coals, with as much as 65 per cent. of carbon, while others contain much more olatile matter. The iron ores of the region, as already

this or it wat effective there is never will mater

mentioned, belong to two classes, the red hematite, or so-called fossil ore of the Clinton beds, and the brown hematite below. The former is almost everywhere in its place at the outcrop of the rocks of the third division throughout the Long Valley. The ore has been traced, according to Professor Smith, with very little interruption, from Pratt's Ferry, on the Cahaba above Centerville, nearly to the Georgia line, sometimes very pure and at other times too siliceous for us Near Birmingham, where it is mined for the Oxmoor Furnace, there are seen in a thickness of 30 feet 25 feet of ore, with interposed shaly bands. Numerous analyses of the ore mined at different points in the valley, where mind at different points in the valley, where their thickness is from 10 to 20 feet, give from 42 to 55 per cent. They are generally smelted with an admixture of the brown hematite of the region. As regards these brown hematites I can only say, after comparing them with similar deposits of these ores from Massachusetts southward to Virginia along the great valley, that they are of wonderful extent and richness, and, so far as my observations go, are unsurpassed. These hydrous ores have been generated, as crop. A remarkable dislocation of the strata occurs to the southeast of the Cahaba field, where white limestones of the Knox or Taconic series are brought, by a great upthrow, on a level with the highest of the eady explained turned. This great fault was estimated by Rothwell at not less than 10,000 feet, and his interpretation of the structure, though questioned at the time, has since been conquestioned at the time. results that over many square miles along the outcrop of these lower rocks, both in the west and east sides of the Cahaba coal field. we find a succession of hillocks composed in great part of masses or fragments of brown hematite, while in their vicinity excavations show the same ore still imbedded in the stratified and often highly inclined clayey beds resulting from the decay of the original rocks. In some cases the same ore, of unucoal fields on each side. The result of this is the singular one that the waters of the valley break through the ridges on each side, and find their way into the Cahaba and Warrior rivers, the valley being really higher than the plains on each side of it. As a consequence of this peculiar drainage, we find that the limonite ores along the valley. sual purity, is found imbedded in large irregu ores that they are sometimes less hydrated than limonite and approach to turgite in composition. They have long been mined and smelted with charcoal along the Coesa Valley, where they are not less extensively developed than in the outlying valley west of the Cahaba field, in which district they are now mined for the furnaces of Birmingham and its vicinity. ham and its vicinity.

It would be foreign to my present plan to enter into details as to any particular por-tion of the region before us. Its value as a whole consists in the fact that it possesses coal abundant in quantity, excellent quality, and situated in proximity to the waters of the Gulf of Mexico, with which traverses the field as a low ridge, and divides the basin into two unequal troughs. Of these, the one to the eastward—which is the narrowest, and is drained by the Locust

\*Read before the American Institute of Mining Engineers at their annual meeting. Boston, February 20, 1883.

waters of the Gulf of Mexico, with which is on the southeastern edge of the Warrior field, there is navigation throughout the year to Mobile, a distance of 355 miles. As appears from a re-

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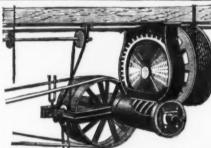
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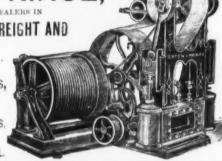
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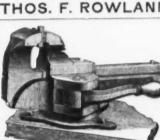
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ort of United States Engineers to the War Department, submitted to Congress in 1880, there is between Tuscaloosa and Sipsey Fork, in the Warrior basin, in a distance of 92½ miles, a rise of about 16 feet. A system of dams and locks, with chambers 145 x 30 feet, would suffice to establish water com-30 feet, would suffice to establish water communication from this point, in the heart of the coal field, to Mobile throughout the year, for an estimated cost of \$400,000. Barges laden with cotton, coal and lumber have, it is said, for many years been sent down this way during seasons of high water. The Alabama River is navigable from Selma to Mobile, and the Cahaba River, which drains the Cahaba field and falls into the Alabama a little above Selma can, in like manner. a little above Selma, can, in like manner, according to official report, be made navigable at a cost of \$500,000.

The present lines of railroad have done little for the development of this mineral region. Two great north and south lines, as already pointed out, the Alabama and Chattanooga Railroad, and the Selma, Rome and Dalton Railroad, pass down the valleys west and east of the Cahaba field. The South and North Alabama Railroad, however—a continuation of the Louisville and Nasbville Railroad, which in its course from Decatur to Montgomery intersects the first of these roads at Birmingham and the second at Calera—crosses a small part of the Warrior field near Birmingham, and also the narrow portion of the Cahaba field. The Georgia Pacific, from Atlanta, passing through Birmingham, will traverse the through Birmingham, will traverse the breadth of the Warrior field. During the breadth of the Warrior held. During the last years of the civil war a line was surveyed and in part graded, for the purpose of opening the lower part of the Cahaba field, starting from Ashley, a little below Calera, and running northwest and them northeast into the heart of the coal field. It has lately been proposed to complete this work, and other projects are under consideration for the development of the Cahaba field, where very little has been done since the close of the war, during which coal was here extensively mined. My own observations at the old openings satisfied me of the correctness of Rothwell's observations, and showed that we have in this field a region which, as regards the supply of coal, the proximity of iron ore and facilities for minng, smelting and transportation, is unsur-

exception of deposits of ore in the coal measures in the northwestern portions of the great basin, it is well known that the ore and coal in the United States are generally widely separated. Not to speak of the crystalline ores of the older rocks, the great supplies of limonite upon which the iron industry of Pennsylvania and Virginia are largely based present similar conditions. It suffices to look at a geological man of these States to based present similar conditions. It sumes to look at a geological map of these States to see what a broad belt of mountainous country separates the limonite-bearing rocks of the great valley from the coal measures, will be taken back with a rebate of the purthe great valley from the coal measures, while a considerable interval also divides these from the fossil ores. Owing, as already explained, to the thinning out of the intervening rocks, which are reduced to less contact those that persist are, for the most part, soft and crumbling, we have seen how the ores and coalso widely separated elsewhere are in Alabama brought into close proximity. Thus, in Long Valley, a distance of six or eight miles only separates the coal fields from each other, while abundant deposits both of the red and the brown hematite are found in the interval between them. It is the red and the brown hematite are round in the interval between them. It is not there-fore surprising that this valley is rapidly be-coming an important center of iron produc-tion, where coke-made iron can be produced more cheaply than anywhere else on this The remarkable dislocation and upthrow.

already noticed as occurring on the south-east side of the Cahaba field, bring about a east side of the Cahaba held, oring about a still closer approximation of iron-producing materials by lifting up the lower ore-bearing rocks side by side with the coal measures. Here, on the banks of the Cahaba River, deposits of limonite of great abundance and deposits of limonite of great abundance and purity are found, extending over many hundreds of acres of the surface, within two miles of opened beds of coking coal, while cliffs of a pure white limestone, well fitted for flux, are seen within the same distance. It is impossible to look upon all the developments of coal and rich iron ores, elsewhere so widely separated and hand the cliffs of the cheap counters of the small articles which dealers, in legitimate trade, can afford to handle. It is probable that no other achieved so extensive a reputation.

Some one in Massachusetts is crazy on the contract of the cheap counters of other concerns, leaving it one of the small articles which dealers, in legitimate trade, can afford to handle. It is probable that no other achieved so extensive a reputation. ments of coal and rich iron ores, elsewhere so widely separated and here brought into close proximity, without feeling that these Alabama coal fields are destined at no distant time to be the seat of an immense mining and manufacturing industry. It is true that this recipion is now somewhat removed from our great centers of population and consumption; but with the improve-ments in water transportation now projected, iron could be carried to Mobile and thence by sea to American and foreign ports more by sea to American and foreign ports more easily than from any other iron-producing region in the Union. Nor should we torget in this connection what a vast future awaits the South, with its newly-awakened activity in agriculture and in manufacturing indus in agriculture and in manufacturing indus-tries—a region offering such advantages of soil and climate as cannot fail in the next few years to attract a very large immigra-tion. If we look to the census returns of 1880, we shall find that the eight coastal Southern States, from North Carolina to Texas, with a population of about nine and a quarter millions, showed an increase over that of 1870 of 41.6 per cent., while the increase for

that the region "presents advantageous conditions for the economical production of the metal rarely met with even in Great Brittion by limiting the output to five days a am." elsewhere asserting that it would week and the working hours to eight is am:" elsewhere asserting that it would "prove a match for any part of the world in the production of cheap iron." Not less striking is the language of Abram 8. Hewitt, who says of Alabama: "It is the only place upon the North American continent where it is possible to make iron in competition with the cheap iron of England, as change until next June.

week and the working hours to eight is being put in force. It is considered doubtful whether this arrangement will give satisfaction in all directions, but, owing to the terms of agreement between the colliery proprietors and the men, no action can be legitimately atken for the purpose of making a change until next June.

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number of days' labor which enter into its production. The channest place on the clark. measured not by the wages paid, but by the production. The cheapest place on the globe until now for the manufacture of iron was the Cleveland district, in Yorkshire, England. The distance of the coal and iron from the furnaces there averages about 20 miles. Now, in Alabama, the coal and the ore are in many places within half a mile of each other. This region, so exhaustless in supplies, so admirably furnished with coal, so conveniently communicating with the Gulf, will be of infinitely more consequence to us from its iron than it has ever been for its cotton. The ore is the foundation of an industry and a prosperity which no curse of slavery, nor rebellion, nor interference with economic laws, can ever overturn. I think this will be a region of coke-made iron on a scale grander than has ever been witnessed on the habitable globe."

markable points in the geology of the coal region of Central Alabama, especially as compared with that of the more northern both of the geology and the geography of the region to its economic interests. I have also wished to record the strong impressions made upon me by what I saw there during a late visit of a week. The development in Central Alabama, not only of a great coal trade, but of a vast iron industry, is certain in the near future, and indeed has already begun. I leave for another time and place the discussion of details respecting the region. Meanwhile, it must be said that the geographical position of Alabama, its min-eral wealth, its fertile soil and its favorable climate are destined to give it a pre-eminent place among the Southern States of our Union.

#### The Dover Egg-Beater.

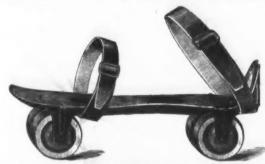
It is probable that no more successful mechanical device was ever introduced in this or any other country than the little article of domestic utility familiarly known to the trade as the "Dover" egg-beater. En-tering a field already filled with ingenious and practical appliances, it steadily pushed its way to the front, and in a very short time As regard the iron resources of the region, we may note, in the first place, the proximity of the ore to the coal. With the limited exception of deposits of ore in the coal measures in the northwestern portions of the great basin, it is well known that the ore region in the United States are conversible. result of giving perfect satisfaction to everybody than any other mechanical appliance which finds a place in the domestic economy. So confident are the manufactures that this claim can be sustained that they sell their entire product with the guarantees the chase money. To what extent this guarantee has aided in the sale of these goods it would be difficult to say, but it has certainly had the effect of creating in the tection from patents, and where its sale de-pends entirely upon its merits in points of construction and fine finish. An important construction and fine finish. An important advantage to which the manufacturers direct attention, is that prices of the Dover eggbeater are fixed and permanently maintained —none being sold to the trade except upon agreement of the buyer to maiatain the prices established. This arrangement keeps the article out of the "bargain stores" and from off the changements of other con-

crazy on the subject of color-blindness, at least so we judge from the bill which was recently introduced in the Massachuwas recently introduced in the Massachusetts Legislature in regard to this matter. The bill provides that railroad employees shall be examined for color-blindness. It also provides that they shall be examined by some competent person. All this sounds well enough, but the "raving idiocy" of the next provision will not be seen very clearly by any but experts, and provides that the tests shall be made or the examination consined to the signals in actual use on the railroad or railroads upon which the person road or railroads upon which the person examined is employed. Now, the absurdity of this proposition can best be shown by a statement which we venture to make, namely, statement which we venture to make, namely, that by this means no color-blind person who is familiar with railroad work, no matter if he be unable to distinguish the color of a red cherry from the green leaf of the cherry-tree, would fail to pass this examination. We do not believe that Doctor Dalton himself, who described the color of a rosy check as precisely similar to a wash of india ink, would have failed to pass such an examination. We would not deny that very competent and skilled experts might, if sufficient time and perfectly housest assistants. the Union, taken as a whole, was but little over 30 per cent. To Alabama, as the great coal and iron producing State of the South, the chief part of this vast region may be made to a large extent tributary.

Already, in 1875, the great natural advantages of Alabama for the manufacture of iron attracted the attention of Isaac Lowthian Bell, who, in a communication to the British Iron and Steel Institute, declared that the region "bresents advantageous contains the region break and the state of the same collieries in the Lancashire distance over the same collieries in the same competent and skilled experts might, if sufficient time and perfectly honest assistants, in proper numbers, were given them, detect the color-blind. But they have testified to pass such an ink, would not deny that very competent and skilled experts might, if sufficient time and perfectly honest assistants, in proper numbers, were given them, detect the color-blind. But they have testified to pass such an ink, would not deny that very competent and skilled experts might, if sufficient time and perfectly honest assistants, in proper numbers, were given them, detect the color-blind. But they have testified the color-blind. But they have testified to pass such an ink.

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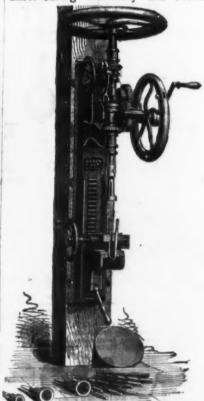
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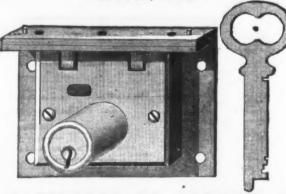
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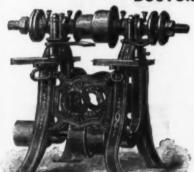
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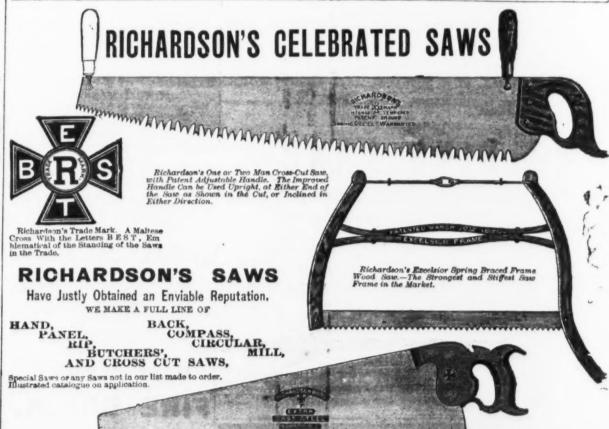
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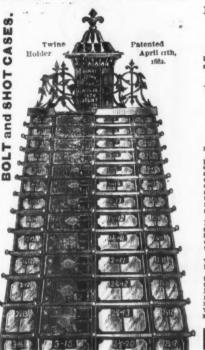
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Carpenter J. M., Faytucket, R. (Manning, Maxweil & Moore, 111 Liberty, N. Y. Wiley & Russett Mig. Co., Greentelo, Mass.

Testing Machines.

Olsen Thius & Co., Philadelphia,

Disable Bros., Philadelphia.

Testing Machines,
Olsen Thins & Co., Philadelphia, Pa
Rishić Bros., Philadelphia.
Thi ware, Stammed and Japanned,
Sidney Shepard & Co., Buffalo, N.,
Tool Grant
Tools, Tient and Grant Hiffers,
Eaton, Cole & Burnham Co., SJ John, N. Y.
D. Saunder's Son-, Yonkers, N. Y.
Travelers Overhead,
Vale Lock Mr. Co., SJ Chambers, N. Y.
Trimvelers Overhead,
Vale Lock Mr. Co., SJ Chambers, N. Y.
Trimvelers Overhead,
Vale Lock Mr. Co., SJ Chambers, N. Y.
Frinceld Block Co., Lockport, N. Y.
Rielité Bros., Gt habove Master, Philin.
Try Squares, Beveix, &c., Jakers of,
Disston Heury & Sons, Phila.
Tube Expanders,

# NEW YORK WHOLESALE PRICES, March 7, 1883.

METALS.	
IRON,—Dury. Bara, I to 15c. W B; Sheet, Bi Poon and Servill, 15 to 15c. W B; provided, that no of the above troe shall pay a less rate of duty tr 2t. per cent. Pig. 37 & ton; Pollabed Sheet, 3c. W Wrought Sernp, 68 w ton; Cast Scrap, 56 w ton. R tond, 70c. W ton B. Boller and Plate, 15c. W B.	nne me m m m m m
FOURGRY, No. 1x # ton \$24.00 @ 2 FOURGRY, No. 2x # ton 22.00 @ 2 Gray Forge. # ton 19.50 @ 2	1.40 2.40 3.40
EXTINSION	, 50 , 50 , 50
Regear No. 3, in store P ton Nomin	
Tron.	40
Wrought Scrap # ton. from yard 26.00 @ 27. Bicci Crop Ends	OB .50
### Tren from Stere.  Common from \$\frac{1}{2}\$ to 1 in. round and square	
Bheet Iron.	0
Common R. G. American American Nos. 10 10 20 W b 4 6	_
21 to 24 # B 44c \$14c	7
28	I
ft, and o er # h	
ad valorem.  American Ingot.  ***BEATHING BRAZZERS COFFER, BOLTS, &C.  **Brailers' Copper, ordinary sizes, tio L. per 60, ft., and o er # h  Brailers' Copper, ordinary sizes, under 16 oz.  and over 12 oz., # 8q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz. and 12 oz., # 9q. ft.  **Brailers' Copper, 10 oz	HWH
Sheathing Copper, over 13 G. W sq. ft. W b 26c toolt Copper . W b 30c toolt Copper . W b 30c Copper Bottoms . W b 31 @ 32c Ao Copper is Sheathing except 14240 inches, and not to exceed 44 Os. to the sq. ft. TENTIES.  Sheets 14 X 48. W sheet 6c	13
For timing both sides, double the above amount. O'NEILS PATENT PLANISHED COPPER.—Net.	SHE
14 and 16 ex. and heavier. # 2 370 By the case. # 2 360 12 02 and lighter	Z Si
14 and 16 or. and heavier. P B 350 By the case. P B 360 12 or. and lighter	81
4 and 16 ex. and heavier	
Brown & Sharp's Gauge the Standard for Melais. Old English Gauge the Standard for Wire.	W
Cash prices for Ro.i and Sheet Brass. For less quanties than 100 hs add 30. F h.	MII Un Cli
Atl Nos. not thinner than so No. 28, wider than 2 an., not wider than 14 in	Ne Ne No
in. not wider than 14 in	No Co Lir

A II. Nos. to No. 26, inclusive, and widths over 20 to 30 f., inclusive. • advance on each No. above Nos. 28 to 36, in-

9 h more than High Brass.
6 ilding Metal, 6: 9 h more than High Brass.
in Bars.
Platers or Gold Metal
Planed or Folished.

tetal, in width : in. to 14 in. to No. 28, inclusive, :c P B ance. , in width : in. to : in. thinner than No. :8, :e # m ance. , in width : in. to !6 in. thinner than No. :8, :o # m ance.
in width 1/4 in. to 1/4, inclusive, not thinner than 26, 27 \$\mathbb{B}\$ advance.
in width 1/4 in. to 1/4 thinner than No. 28, 50 \$\mathbb{B}\$ incs.

[4] in. in width and less, roc # 5 advance.

[5] the above widths cut to particular lengths, add GERMAN SILVER MARKET METAL AND WIRE. Market Metal.

man Silver Sheets over 12m. wide and weighing than 10 S., \$2 \$ \$5.

than 10 S., \$2 \$ \$ \$5.

and 2c. \$2 \$ \$0 on each No. thinner than Nos. 26 to blustre. e. an Silver thinner that No. 96 is Platers', at

mt., 12 inch to No. 26....

No.44													-40	-44	. 40
No.25.													-43	.47	.68
													-44	- 40	.66
No.26.													. 48	4.9	.55
NO.37.														. 4	.69
No.29.													.53	. 90	
No.20.													- 65	-99	.66
No. 30.													. 68	.62	-72
No. 31													.6a	.66	18
													.66	.70	Re
. 0.32.													.70	7.0	.00
No.33.														-74	-93
Sec. 34.												٠.	-74	.70	1.03
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Win	e s	e e	1 k	(4)	кŝ	s. I	le	ia.	s	٤	Ь	1.0	hs, 43c. n 2 feet tra for s	lengths, spe pooling on a	cial rates. 8 spools

wire and Rods less than 2 feet lengths, special	al rate
Twelve ceuts per h extra for spooling on : 8 No 36.	spool
MIRCELLANEOUS.	
Brass Fail Ears	
Brnes Door Rail	4
BCRAF -Net.	
High Brass Scrap	
Low Brass Scrap	140
Gilding Turnings, Filings and Chip saalf the price of Terms—Net cash. Interest to be added after	scrap.
days.	
TUBING -die. 24 %.	9: 1
No 20 inclusive above 14 in. to 3 in	8-4
Plain anove vin	[
Nos 21, 22, 23, two cents advance on Lis for es	
Nos. 14, 25, 25, four cents of ance on Last for es Number.	юр
Above No. ro, special rates,	
Pain, Minch	- 7
Plain, 4:16 Inch.	1.2
atn, sq inch.	1.0
all Califre Drawn Tubes a cente advance of	1.161

Pain, Minch
Plain, vi6 Inch.
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all nandre Drawn Tubes a cents advance on List
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ya any Tobdag to No. at
en tian, Se seb and Extra Patterns Fancy Tubing
\$130.20 apparentment of the apparent
Til itug Sawed or Cut 2 to 4 feet tong, 2 cents ad
VA OF OR 1 ISL
And two cents. 16 cent for each additional cuttis
neder's fact

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	All Mandrel Drawn Tubes under % in. 25 cents per	
	pound advance.	
	ZINC TUBING-dis. 25 %.	
	PlainFancy.	27
a	Fancy. Scotch and Extra Patterns. GERMAN SILVER TUBING.—dls 25 3. 4 Per cent.	33 36
10	GERMAN SILVEN TURNEDdia ac a	ju
n	4 Per cent.	lo.
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ю	5 Per cent	15
io io	18 Per cent	4
60	Per cent	0
*-	18 Per cent	0
ic	valued at 70 P b. or under, 2140; over 20 and no	è
C	above 11, 90 F h; over 11, 3560 F h, and 10 % ad val	ũ
0	Railway Bars, 1140 P h. Railway Bars, in part Steel	
Œ	ic # B. Provided, that Metal cemented, cast or made	ė
0	from fron by the Hessemer or pneumatic process, of	r,
0	whatever form or description, shall be classed as American ('mat Steel, For American Steel see quotations under heading of	-
	For American Steel see quotations under heading of	,
*	Pittsburgh.	١,
	English Steel.	- 1
	English Steel.  Best Cast	١ ١
2	Extra Cast B n rolec	ı
5	Extra Cast # b roide Round Machinery, Cast # b roide	1
. !	Best Double Shear to 15560	1
9	German Steel Best	1
,	ad quality # h noc 3d quality # h pc Sheet Cast Steel, 1st quality # h 15/50	1
- 1	ad quality w m oc	1
-1	Sheet Cast Steel, 1st quality # h 15/16	d
- [	ad quality.  3d quality.  B 14/50 3d quality.  B 21/50 ANTIMONY.  Bee Trade Report	1
-1	3d quality # b125c	1
- 1	ANTIMONY	1
-	Pine and Shoet sice is to D Old Lead, 1960 w in	1
1	ad quality \$\psi\$ higher \$\psi\$ higher \$\psi\$ higher \$\psi\$ higher \$\psi\$ billion \$\psi\$ A N Ti N to N \psi\$ See Trade Report \$\psi A \psi\$ Pipe and Sheet, \$\psi_G \psi\$ B. American \$\psi_G \psi\$ B.	ł
1	Bar6i4c. ner	1
1	Pipe	1
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1	Sheet	L
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ľ	Chilled Shot	Г
Ŀ		ŀ
L	A. 26c ;B. 24c ; C. 14.	١.
١.	MIN Down Disease Charle Consessed Co.	Г
ì.	TIN.—DUTT. Plates, Sheets Tagger and Terne, 1.10 \$ \$ \$; Electro-galvanised Plates, \$x \$\tilde{x}\$ \$\tilde{x}\$ is indiractures of, not enumerated, \$5\$ per cent. ad val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent.	1
	tures of not enumerated as ner cent ad val. Dans	1
	Block and Pies free. Banca, subject to duty of re-	1
L	per cent.	13
1	Banca # 75 2834 68 200	13
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		3
1	C 10X14   PrimeCharcoal \$6.50 @ 6 75	3
1	C 14X20 7111150 CHAPTOON 175	
į	C 12X12 Prime Charcoal 6.75	
å	Y 10X14 Prime Charcoai 8.25	ł
Ŷ	Y 19712 Prime Charcoal	11
î	10X14   Prime Charcosi   8.55   X 14X10   Prime Charcosi   8.55   X 14X10   Prime Charcosi   6.00   6.55   X 12X12   Prime Charcosi   6.00   6.55   X 12\(\frac{1}{2}\)X17   Prime Charcosi   8.25   For each additional X add   2.00   COURT TO PLATE	11
ĩ	X 126x17, Prime Charcoal	
-	For each additional X add	
	CORE TIN PLATE.	
	Best. Ordinary.	
Ī	C 10.214 )	
ă	C 14X20)	
A	C 12E12 5.00 5.00 6.75	
	Prime Char. 2d Qual. Coke.	
r	Prime Char. ad Qual. Coke. C 14X30 \$c.63\forall \cdots 5.75 \$.75 \$.35\forall \$5.37\forall \$7.50	
Ĩ	X 14×20 7.50	
I	C 20X28 11.50 11.00 @ 11.25 10.75@11.00	
Į.	X 20X28 15.50	
Į	C 14xx0.	
I	U 14x20 M. F. Brand	
8	OLDER-16 & 16154c	
Les.	O. I	
8	PELTER DUTY : In Pigs. Bars and Pites. \$1.50	
	₩ 100 B. matrican. cash. INC.—DUTY Pig of Block, \$1.50 W 100 B; blace bide W B.	
A	mérican, cash	
Z	INCDUTY Pig of Block, \$1.50 \$ 100 \$; bheet	
m	head Chalk	

# Paper Stock, &c.

(Dealers' Selling Prices.)	
(memora manning avenue)	Conts W %
White Shirt Cuttings. No. 1	Contract of a
White Shirt Cuttings, No. 2	1 2 1
Mill Assorted Whites.	3/2 X
Unbleached Muslins	229 92 22
City Whitee We .	094 (B 01
City Whites. No. 1. New Canton Flannels.	474 199 5.
New Canton Flannels	08 00
New Seconds light	374 (9 37
New Seconds, dark	3 @ 35
No. a Wnites	2% (8 2)
Cotton Canvas	476 @ 45
Linen Canvas, No. 7	454 @ 425
Seconds, City No. 1	196 @ 19
Seconds, City No. 2	134 60 139
Colors, per 100 Bs	70 @ 0
Manija Rope	316 (6) 356
Manie Hope, Tarred	234 60 244
Gunny Bagging, No. 1	254 66 254
Gunny Bagging, No. 3	194 (0) 134
Kentucky Bassing	A 4 68 A 8
Burlap Bagging, No. 1	214 (8 214
Tar Shakings	2 64 24
Hemp Twine Stock	436.60
Hard White Shavings, No. 1	A 00 10
Soft White Shavings. No. 1	214 (9) 21
White Shavings, No. 2, soft	379
Mixed Shavings, part white	ald 48 374
Ledger and Writing	77 3
Solid Stock	314.33
Book Stock, No. 1, light	278 US 276
Old Newspapers	175 00 150
Propa Manting	179 00 194
Pure Manilas Bogus Manilas and Bardwares	73 X 394
Commons per 100 lbs	74 1
Binders' Board Cuttings	70
Strong Board Cuttings	128 cm 124
Straw Board Cuttings	74 9 34

### Paints, Oils, &c.

	Black Lamp, Coach Painters. * b Black Lamp, Ordinary . * Black Ivory Drop, fair Black Ivory Drop, fair	300
	Black Lamp Ordinary	20 00
	Black Ivory Drop, fair	1,250
	Plack Point in col	.230
	Bine Prussian fair to best	, IIC
	Rine Prussian, fair to best, in oil	5.50
	Biue Chinese dry	. 206
	Blue Ultramarine18 @	1 906
1	Browa, Spanish	2540
ı	Browa, Spanish Brown, Van Dyke 10 @ Green, Chrome 115 @ Green, Chrome 10 oil 14 @ 18 @ Green, Paris 10 oil 20 @ 18 @ 18 @ Green, Paris 10 oil 20 @ 18 @ 18 @ Green, Paris 10 oil 20 @ 20 @ 20 @ 20 @ 20 @ 20 @ 20 @ 20	120
1	Green, Chrome	330
ı	Green, Carome, In Oll	250
ı	Green Paris in oil good son best	250
1	Iron Paint, Bright Red	1490
1	Iron Paint, Brown # %	2 har
1	Iron Paint, Purple	3 6
ı	Iron Paint, Ground in oil, Bright Red * %	6160
1	Iron Paint, Ground in oil, Red	436c
ı	From Paint, Ground in oil, Brown	5190
I	Minoral Date of the country of the c	0 0
ł	Mineral Paints26	9 4C
l	Red Lead American	100
Ì	Orange Mineral Bed Lead, American Red Venetian (Eng. dry 81.6c @ \$ Red Venetian (In oil. 885'd cans, 112; kegs,  Red I winds dry 96	F-70
۱	Red Venetian, in oil asst'd cans, ric; kegs,	. Sc
ĺ	Red Indian dry 9@	120
l	Rose Pink	130
ı	Sienna. American. Haw, powdered	
ı	Sienna, Burnt, powdered	196C
l	Stenna Daw	306
l	Umber Burnt powdered	230
ł	Umber, Burnt, in oil	rbe
l	Red Venetlan, in oll	36c
l	Umper. Raw. in oil	48c
I	Vermilion, Chinese	900
ı	Vermillon, English49 @	48C
l	White I and American Common	150
l	White Lead American pure in oh	- 70
l	White, Paras, English, prime	D.C
ı	Yellow Ochre, French	1.75
l	Yellow Ochre, Preuch, in oilasst'd cans, 110; kegs.	, Se
l	Yellow Ochre, Vermontin casks, 1	360
ŀ	Yellow Chrome	27C
l	Yellow Chrome, in oil	3 è C
ľ	Zine White, American No. 1, dry	90
ŀ	Zine White French (Paris) dry 8.6	100
	Zinc White, French in oil	110
	0110.	
	Linaced Raw in casks and bbis	séc
	Linseed Botled, in casks and bbis	500
	Linseed, Calcutta	6oc
	Bleached Whate gai.	040
	Bleached Sperm # gal.#:	1.25
	Bleached Elephant	75C
	Name of the second	906
	No . Fytre	gor:
	West Virginia 130 @	180
	Drilling	HOL
	Miners' Oll	SOC
	Fish Oil, pressed	460
	Neatsfootboc @	90
	West Virginia         130 @           Drilling         440 @           Miners' Oil         450 @           Fish Oil, pressed         550 @           Neatsfoot         500 @           Taillow         700 @           Empire Cylinder Oil         700 @	SC
	Machinery	PURE.
	Engine	500
		-
	Mineral Wool, ordinary * Dr@ 1	160
	Mineral Wool. extra	Sec

,	Frostings				400
	Glue, White			******	.24 @ 35P
	Glue, Sheet				200
2	7   Ginziers Points, Zine				
3	3 Gum, Copal				. ,36c
3	Gum, Damar				24C
.8	Gum Shellac, English Gum Shellac, English, dar				400
.0	Litharke			*******	7460
1.0	Pumice Stone, selected Lu	um ps			4 @ 6c
1.3	Pumice Stone, Powdered.				2960
1.3		******	******	******	82.00
1.4	Pitch.	******	******		\$2.25
. 6x		*******	*****		3C
ils,	Rosin-Common and Good	Strat	ned		## 00
ot	E&F			82, 10	@ \$2.30
al	G & FI	******		82.30	@ \$3.50
el,	I & K			\$2.60	@ \$2.80
of				83.00	@ 84.25
UL	Spirits Turpentine Whiting Spanish			5256	to (3)40
	Waste, No. 1 Cop				940
of	Waste, No. 1 Cop Waste, No. 1 White Machin	0			
	Waste, No. 2 White Machin.	Ø			alca
	Waste, No. 1 Colored Waste, No. 2 Colored				70
90	Waste, No. 2 Colored				6160
4c	Waste, Washed Machine				2
2	***				
40	Prices current pe	er bon	of so f	net.	
60	Prices current pe	er box		eet.	
60	Prices current pe List, Janu	er box ary 17.		oet.	
60	Prices current po	er box ary 17, Thick.	1882.		
60	Prices current pe List, Janu	er box ary 17.		eet.	4th.
60	Prices current por List, Janu-Single sizes.	Thick.	1882.	3d.	-
60	Prices current p. List, Janu Single 81ZES. 6 x 8 to 10 x 15	Thick.  18t.  \$10.00	1882.		4th. 8 8.40
60	Frices current p. List, Janu. Single SIZES.  6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 24 02 02 x 30.	Thick.  18t.  \$10.00 11.50 14.75	2d. 8 9.25	3d.	-
60	Frices current ps. List, Janu.  Single SIZES.  6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 22 to 20 x 30. 15 x 36 to 44 x 30.	r box ary 17, Thick. 18t. 810.00 11.50 14.75 16.50	2d. 8 9.25 10.75 13.75 14.75	3d. 8 9.00 10.25	8 8.40
éc éc rt	Frice current ps. List, Janu.  Single  SIZES.  6 X 8 to 10 X 15.  11 X 14 to 16 X 25.  15 X 26 to 20 X 26.  15 X 26 to 24 X 36.  26 X 38 to 44 X 36.	### ##################################	20. 8 0.25 10.75 13.75 14.75 16.00	3d. 8 9.00 10.25 12.40 13.00	8 8.40
in the second	Frices current ps. List, Janu.  Single 612E8.  6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 22 to 20 x 30. 15 x 36 to 24 x 30. 26 x 88 to 24 x 36. 26 x 36 x 64.	### ##################################	20. 8 0.25 10.74 13.75 14.75 16.00 17.25	3d. 8 9.00 10.25 12.40 13.00	8 8.40
éc éc rt	Frice current ps. List, Janu.  Single sizes.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  11 x 25 to 30.  26 x 36 to 14 x 36.  26 x 36 to 36 x 44.  26 x 36 to 30 x 40.	810.00 11.50 14.75 10.50 11.50 12.75 10.50 12.75 10.50	20. 8 0.25 10.74 13.75 14.75 16.00 17.24 19.25	3d. 8 9.00 10.25 12.50 13.00 14.00 14.50	8 8.40
Se	Frices current ps. List, Janu.  Single 6x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 2 to 20 x 30. 15 x 36 to 24 x 30. 26 x 38 to 14 x 36. 26 x 36 to 36 x 44. 26 x 46 to 30 x 50. 20 x 50 to 30 x 54.	## Box ary 17,  Thick.  ### 18.00  11.50  14.75  10.50  17.50  18.75  20.40  22.75	20. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00	3d. 8 9.00 10.24 12.40 13.00 14.50 16.50 18.00	8 8.40
in the second	Frice current pulse, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  19 x 36 to 14 x 39.  20 x 36 x 3	## Box ary 17,  Thick.  ## 10.00  ## 11.50  ## 17.50  ## 17.50  ## 18.75  ## 22.75  ## 22.75  ## 24.00	20. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 21.00	3d. \$ 9.00 10.25 12.50 14.50 14.50 18.00 19.75	8 8.40
Secret Consession	Frices current pulst, Janu.  Single 61ZES. 6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 22 to 20 x 30. 15 x 26 to 24 x 30. 26 x 28 to 14 x 36. 26 x 36 to 30 x 44. 26 x 36 to 30 x 54. 29 x 55 to 30 x 54. 39 x 56 to 34 x 5. 30 x 56 to 34 x 5. 30 x 56 to 34 x 5. 31 x 56 to 34 x 5.	### BOX ary 17,  Thick.  ### 186.  #### 186.  ###################################	20. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 25.75	3d. 8 9.00 10.25 12.40 13.00 14.00 14.50 18.00 19.75 21.40	8 8.40
in the second	Frice eurrent ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 50.  20 x 36 to 34 x 50.  20 x 36 to 36 x 34.  20 x 36 to 36 x 34.  20 x 36 to 36 x 36.  30 x 36 to 36 x 36.	## Bio.00   11.50   11.50   11.75   10.50   12.75   20.50   22.75   24.00   25.85   26.60	20. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 21.00	3d. \$ 9.00 10.25 12.50 14.50 14.50 18.00 19.75	8 8.40
in the second se	Frice current pulse, Janu  Single  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  15 x 36 to 24 x 30.  26 x 28 to 14 x 36.  26 x 36 to 30 x 44.  30 x 36 to 30 x 54.  Double	er box ary 17, Thick.   18%.   \$10.00   11.50   14.75   10.50   18.75   20.50   22.75   24.50   24.50   25.85   26.60   26.60   26.60   27.60   26.60   26.60	20. \$ 0.25 20.75 13.75 14.75 16.00 17.25 19.25 21.00 21.00 22.00 25.00	3d. \$ 9.00 10.25 12.40 14.00 16.50 18.00 19.75 21.49 23.75	8 8.40 G-90 21-90
Secretary Consultant	Frice eurrent ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 50.  20 x 36 to 34 x 50.  20 x 36 to 36 x 34.  20 x 36 to 36 x 34.  20 x 36 to 36 x 36.  30 x 36 to 36 x 36.	## Bio.00   11.50   11.50   11.75   10.50   12.75   20.50   22.75   24.00   25.85   26.60	20. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 25.75	3d. 8 9.00 10.25 12.40 13.00 14.00 14.50 18.00 19.75 21.40	8 8.40
in the second se	Frices current pulses, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 2 to 20 x 30.  26 x 28 to 24 x 30.  26 x 28 to 24 x 30.  26 x 26 to 30 x 44.  26 x 36 to 30 x 44.  30 x 36 to 50 x 54.  30 x 56 to 50 x 54.  30 x 50 to 50 x 54.  Double	er boæ ary 17, Thick. 18t. \$10.00 11.50 17.50 18.75 20.40 22.75 24.90 24.95 24.90 24.95 24.90 25.85 26.60 27.86 28.85 28.60	2d. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 25.75 26.00	3d. 8 9.00 10.25 12.50 14.50 14.50 18.50 18.00 19.75 21.50 23.75	8 8.40 9-90 21.90
Secretary Secret	Frices entrent ps.    List, Janu	er boæ ary 17, Thick. 18t. 810.00 11.50 17.50 17.50 18.75 20.50 22.75 24.00 22.75 24.00 24.85 813.00	1882. 2d. \$ 9.25 10.76 13.75 14.75 16.00 17.25 19.25 23.00 25.00 25.00 26.00	3d. 8 0.00 10.25 12.40 13.40 14.00 14.50 18.00 18.00 19.75 21.40 23.75 3d.	8 8.40 G-90 21-90
Secretary Constant of the Cons	Frices current ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  26 x 28 to 24 x 30.  26 x 28 to 24 x 30.  26 x 28 to 24 x 30.  26 x 26 to 30 x 44.  27 x 36 to 30 x 44.  28 x 36 to 30 x 44.  29 x 56 to 34 x 5.  30 x 56 to 34 x 5.  36 x 56 to 34 x 5.  Double  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.	er boæ ary 17,  Thick.  18%.  \$10.00 11.50 11.57 16.50 17.50 18.75 20.40 22.75 24.00 25.85 28.60 Thick.  18%.	1882. 8 9.25 10.75 13.75 14.75 19.25 21.00 21.00 25.76 26.00	3d. 8 9.00 10.25 12.50 14.50 14.50 18.50 18.50 21.50 23.75 21.40 23.75	\$ 8.40 9.90 11.90
Secretary Consession of the	Frices entrent ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 50.  20 x 36 to 34 x 50.  20 x 36 to 36 x 34.  20 x 36 to 36 x 44.  20 x 36 to 36 x 45.  30 x 36 to 36 x 45.  30 x 36 to 36 x 45.  50 x 56 to 36 x 45.  50 x 56 to 36 x 56.  Double  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.	er boæ ary 17, Thick.  18t.  \$10.00 11.50 11.50 12.50 22.75 24.00 25.85 28.40 Thick.  18t.  \$13.00 15.78 20.00	2d. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 21.	3d. 8 9.00 10.25 12.40 13.00 14.00 16.50 18.00 89.75 21.40 23.75 3d. 811.75 14.00 17.00	8 8.40 9-90 21.90
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Secretary Secret	Frices entrent ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 50.  20 x 36 to 34 x 50.  20 x 36 to 36 x 34.  20 x 36 to 36 x 44.  20 x 36 to 36 x 45.  30 x 36 to 36 x 45.  30 x 36 to 36 x 45.  50 x 56 to 36 x 45.  50 x 56 to 36 x 56.  Double  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.	## Box ary 17,  Thick.  18%.  \$10.00 11.50 11.50 12.75 20.40 22.75 24.00 22.75 24.00 23.85 28.40 18.75 24.00 21.57 24.00 21.57 24.00 22.75 24.00 22.75 24.00 22.75 24.00 22.75 24.00 22.75 24.00 22.75 24.00 22.75 24.00 22.70 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20 22.20	2d. \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 21.	3d. 8 9.00 10.25 12.40 13.00 14.00 16.50 18.00 89.75 21.40 23.75 3d. 811.75 14.00 17.00	\$ 8.40 9.90 11.90
CONTRACTOR OF THE PROPERTY OF	Frices entrent ps List, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  15 x 36 to 24 x 30.  20 x 36 to 30 x 30.  20 x 36 to 40 x 30.  Double  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x x 30.  20 x 36 to 30 x 30.  18 x 36 to 30 x 30.  18 x 36 to 30 x 30.	r box ary 17, Thick. 18t. \$10.00 11.50 12.50 18.75 20.40 22.75 24.00 34.85 28.60 Thick. 18t. \$13.00 15.76 20.00 22.00	20. \$ 9.25 10.74 13.75 14.75 16.00 17.24 19.25 21.00 21.00 22.00 24.25 14.75 26.00 27.00 28.25 28.50 28.	3d. \$ 9.00 10.25 12.40 13.00 14.00 16.50 18.00 19.75 21.50 23.75 3d. \$11.75 14.00 17.00 27.75 19.25	\$ 8.40 9.90 11.90
CONSTRUCTOR OF LO CO	Frices entrent politics, Janu  Single  6X 8 to 10 X 15.  11 X 14 to 16 X 24.  15 X 26 to 24 X 30.  26 X 38 to 14 X 30.  26 X 38 to 36 X 44.  26 X 36 to 30 X 54.  30 X 35 to 30 X 54.  30 X 36 to 34 X 50.  30 X 36 to 34 X 50.  30 X 36 to 36 X 44.  8EZES.  6 X 8 to 10 X 15.  11 X 14 to 16 X 24.  8	r box ary 17. Thick. 18t. 810.00 11.50 17.50 18.75 20.50 22.75 24.00 25.85 28.50 18.75 24.00 25.00 25.00 20.20 24.00 24.00 24.00 24.00 25.	2d.  \$ 9.25 10.75 13.75 14.75 16.00 17.25 19.25 21.00 21.07 25.76 26.00 21.07 25.76 26.00 21.25 25.76 26.20 20.00 23.50 23.50 23.50 23.50 23.50 23.50 23.50	3d. \$ 9.00 10.25 12.40 13.00 14.00 16.50 18.00 19.75 21.50 23.75 3d. \$11.75 14.00 17.06 23.00 24.00 24.00	\$ 8.40 9.90 11.90
CONTRACTOR OF THE PROPERTY OF	Frice eurrent pulse, Janu  Single  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  18 x 22 to 20 x 30.  25 x 36 to 24 x 35.  30 x 35 to 30 x 46.  30 x 35 to 30 x 46.  Double  SIZES.  6 x 8 to 10 x 15.  Double  SIZES.  6 x 8 to 10 x 15.  11 x 14 to 16 x 24.  25 x 36 to 24 x 30.  Double  SIZES.	## box ary 17,  Thick.  18t.    18t.   18t.   18t.   18t.   11.50   17.50   17.50   17.50   18.75   20.50   22.75   24.00   23.85   813.00   15.75   20.00   24.00   24.00   25.00   27.00   27.00   27.00	20. \$ 9.25 10.74 13.75 14.75 16.00 17.24 19.25 21.00 21.00 22.00 24.25 14.75 26.00 27.00 28.25 28.50 28.	3d. \$ 9.00 10.25 12.50 13.00 14.50 16.50 19.75 21.50 23.75 3d. \$11.75 14.00 17.00 17.00 17.00 23.0	\$ 8.40 9.90 11.90

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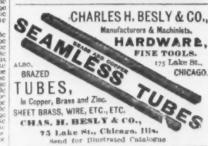
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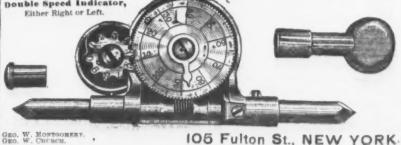


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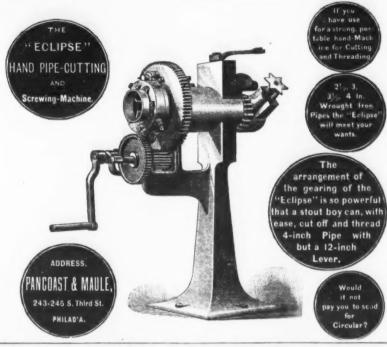
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	1
HARDWARE.	_
A nvils. Fagle Anvils American. ** B toc—dis Wright's. tre (# 1 Armitage's Mouse Hole	20 134 944
Mukinson's   1	20 5
Angers and Bits. Conn. Valley Mfg. Co Douglass Mfg. Co	227
Augers and Bits. Conn. Valley Mfg. Co. 10 uglass Mfg. Co. 2 E. Jennings & Co. 3 E. Jennings & Co. 4 Ives. 1 Iv	080.
Nobies Mfg. Co. Smell Mfg. Watrous & Co. Extension Lip	35 %
Recut Solid Read. dis. Lewis: Patent Single Twist. dis. Russell Jennings' Auger, Dowel, Machine-Dowel an Hand Rail bits. dis roctroct. Russell Jennings' Augers. dis 10%&Coctroct	10 % 10 % 10 %
Russell Jennings' Car and Nachine Bits, Foring Michine and Millwrights' Augersdis 25&10&10%; Industion Jennings' Bitsdis 1ves' "Jennings' Bits	10 % 10 % 10 %
Andrews' Bits. dis Expansive Pits, Clark's, small, \$18; large, \$56, dis Expansive Pits, Ives'. \$20 \( \) \$20 \( \) \$350-dis 3356 Expansive Bits, Blake's. \$20 \( \) \$2	10 第 第 5 6 6 6
Griswold Nobies Mrg. Co Sneil Mrg. Nobies Mrg. Co Sneil Mrg. Watrous & Co. Extension Lip	15 %
Hollow Augers, Stearnis Adjust. V ds. \$40—dis 20st Hollow Augers, Ives' Expansive, each \$4,50—dis 20st Hollow Augers, Universal Expan., each \$4,50—dis 2 Wood's. dis 2 Gimlet Bits. \$7.50 \(\psi\) gross, dis 8	055055055055055055055055055055055055055
Hollow Augers, Universal Expan, each \$4.50—dits a Wood's. dis a Ginlet Bits. Service with the Hollow Augers of the Ginlet Bits, Diamond. For dos. Bits, Diamond. Ginlet Bits, Diamond. Ginlet Bits, Hee' dis a Double Cut Gimlet Bits, Shepardson's dis a Double Cut Gimlet Bits, Ct. Valley Mrg. Co. dis sek: Double cut Gimlet Bits, Ct. Valley Mrg. Co. dis sek: Double Cut Gimlet Bits, Douglass' dis a Double Cut Gimlet Bits, Douglass' dis 4 Double Cut Gimlet Bits, Douglass' dis 4 Holls Bits Stock Drill. dis 2 Holls Bits Stock Drills dis 2 KL. L'Hommedleu's Ship Augers. dis 5	055000
Double Cut Gimiet Bits, Douglass dis 4 Double Cut Gimlet Bits, Ive dis 5 Morae's Bit Stock Drill dis 5 Holts Bit Stock Drill dis 25ks	0 5 0 B
L'Hommedieu's Sinp Augers. dis 1  Awil Haits. Sewing, Brass Ferrule. \$3.50 \( \tilde{\pi} \) gross—dis 40\tilde{\pi}.  Patent Sewing, Short. \$1.00 \( \tilde{\pi} \) dos.—dis 40\tilde{\pi}.  Patent Sewing, Long. \$1.50 \( \tilde{\pi} \) dos.—dis 40\tilde{\pi}.  Patent Peg, Plain Top. \$10.00 \( \tilde{\pi} \) gross—dis 40\tilde{\pi}.  Patent Peg, Plain Top. \$12.00 \( \tilde{\pi} \) gross—dis 40\tilde{\pi}.  Awils. Hrad Pets. \$400.	05
Patent Peg, Plain Top \$10.00 F gross—dis 40&1 Patent Peg, Losther Top \$12.00 F gross—dis 40&1 Awls. Hrad Bets. &c Awls. Sewing, Common F gross \$1.70—dis 24&1	0%
Awis, Shouldered Peg. # gross \$7.4-dis 2681 Awis, Pater Peg. # gross 6sc-dis 2681 Awis, Shouldered Brad. # gross \$2.70-dis 2682 Awis, Handled Brad. #7.50 # gross -dis 2681 Awis, Handled Brad. #7.50 # gross -dis 2681	0%
Patent Peg. Leather Top. \$12.0 \$\pi\$ gross dis \$40ki. Awis. Brad Dets. &c.  Awis. Sewing, Common. \$\pi\$ gross \$1.70 dis \$1ki. Awis. Shouldered Peg. \$\pi\$ gross \$6.70 dis \$1ki. Awis. Shouldered Peg. \$\pi\$ gross \$6.70 dis \$1ki. Awis. Shouldered Brad. \$\pi\$ gross \$6.70 dis \$1ki. Awis. Shouldered Brad. \$\pi\$ gross \$6.70 dis \$1ki. Awis. Handled Strat. \$\pi\$, \$2.50 \$\pi\$ gross \$6.70 dis \$1ki. Awis. Handled Strat. \$\pi\$, \$2.50 \$\pi\$ gross \$6.70 dis \$1ki. Awis. Bandled Strat. \$\pi\$, \$2.50 \$\pi\$ gross dis \$1ki. Awis. Socket Stratch. \$\pi\$, \$2.50 \$\pi\$ gross dis \$1ki. Awis. Bandled Stratch. \$\pi\$, \$2.50 \$\pi\$ gross dis \$1ki. Awis. Bandled Stratch. \$\pi\$, \$2.50 \$\pi\$ gross dis \$10ki. Awis. Bandle Stratch. \$\pi\$, \$2.50 \$\pi\$ gross dis \$10ki. Awis. Bandle Stratch. \$\pi\$, \$2.50 \$\pi\$, \$2.	58
Brud Sets, Stanley's Excelsior, No. 2, \$1.80 dis 30&n Bred Sets, Stanley's Excelsior, No. 2, \$7.80 dis 30&n Axes Single Bit, 416 to 514 and under	o %
Axes.  Ingle Bit, 44 to 04 and under	
Axies, tandard list	5 %
Balences.	
Spring Balances. dis 142:1  Berlis. Hand. Light Brass. dis 6x8:10 @ 74 Hand. Light Brass. dis 6x8:10 @ 74 Hand. Extra Meavy dis 4x Hand. White Metal dis 6x Hand. Globe (Cone's Patent) dis 2x8:10 Gong. Abbe's. dis 2x8:10 Gong. Yankee. dis 2x8:10 Gong. Yankee. dis 2x8:10 Gong. Yankee. dis 2x8:10 Crank. Taylor's. dis 2x8:10 Crank. Taylor's. dis 2x8:10 Crank. Cone's. dis 1x8:10 Lever Bargon's dis 2x8:10 Lever. Taylor's Branned dis 2x8:10 Lever. Taylor's Branned dis 2x8:10 Lever. Haylor's Groned or Flated. dis 2x8:10 Lever. Haylor's Groned or Flated. dis 2x8:10 Lever. Haylor's Groned or Flated. dis 2x8:10 Lever. Haylor's Japanned dis 2x8:10 Lever. Haylor's Groned or Flated. dis 2x8:10 Cow. Common Wrought. dis 2x8:10 Cow. Common Wrought. dis 2x8:10 Cow. Common Wrought. dis 2x8:10 Cow. Under's Genulue Kentucky. Haw Hist Nos. e 1 152 3 4 5 6 Hog 32 21.20 100 20 20 20 20 20 50 50 50 Cow. Texas "Star". dis 2x8:10	NAME OF
Gong, Acce dis soate Geng, Barton's dis soate Geng, Barton's dis soate Crunk, Taylor's dis soate Crunk, Drocks' dis soate	2000年
Crank, Cone's. dis 1 Crank, Conne's. dis 1 Lever Sargent's. dis 5482 Lever, Taylor's Gronced or Flated. dis 5482 Lever, Taylor's Japanued. dis 2482	os set
Lever, R. & E. M. Co., s	-
Cow, Common Wrought. dis 55&10 Cow, Western, dis 20&10 Cow, Western, Surgent's list. dis cokin Cow, Kentucky "Star" dis 20&10 Cow, Kentucky "Star" dis 20&10 Cow, Kentucky dis 20&10 Cow, Cow, Cow, Cow, Cow, Cow, Cow, Cow,	AMBEN
Cow, bodge's Genulue Kentucky, new list— Nos. c 1 11/6 2 3 4 5 6 Hog 817.00 1.00 9.00 8.00 7.00 9.00 3.00 2.50 5.00 } dis 60 Cow, Texas "Star"	*
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10 %	Broughton's, Zinc
10 %	Penciss.
10 %	Faber's Round Gilt # gross \$1.25, net Dixen's Lead # gross \$0.00 met
10 % 10 %	Dixon's Carpenters' gross \$0.75 net Dixon's Carpenters' dis 402 to \$ Picture Nalis.
50 %	Brass Head, T. & S. M(g. Co
10 %	Porcelain Head. Judd's list
6 ×	Platting Machines. # dos 750, net Platting Machines.
***	Astor Plaiting Machineseach \$15.0a. dis 20 % Crown Plaiting Machinesdis 25 %
7 X	Planes and Plane Irons. Bench, First Quality
10 %	Molding dis 15 & Railey's (Stanley R. & L.Co.) new list, Jan. '79 dis 20210 \$
736	Balley's "Victor"
714 714 1719	Plane frons, Butcher's\$500 (\$ \$5.25 to £ Plane frons, Buck Bres\$500 (\$ \$5.00 to £
2.25	Plane froms, Audurn Tool Co
net lo %	Plane Iron, Oslo 1001 Os
の第の第の第の第	Hali's Pat Compound Lever Cutiling Nippers, No. 2, 5 in., 2 50; No. 4, 7 in., 22.00 # doz
5%	Hup son & Beckley Mfg. Co. dis 33/8 8  Pilers dis 50 8  sureka Pliers and Nippers dis 50 8
o %	Russell's Parallel. dis 25 P. S. & W. Cast Steel dis 25 P. S. & W. Tioners' Cutting Ninners
20%	Plumbs and Levels.  Dission's
20%	Stanley R. & L. CO. 's Non-Adjustabledis 65&10 % Stanley R. & L. CO. 's Non-Adjustabledis 65&10 % Chapin's Patent Adjustable
3 %	unapin's Non-Adjustabledis 65&10&10 % Standard Rule Co.'s Now Adjustabledis 65&10 % Standard Rule Co.'s Non-Adjustabledis 56&10 %
391	Johnson's Fatent Adjustabledis ochic 1 Pock: t Levelsdis ochic 2 Davis' Inclinometers
20	Feat Hele and Tree Augers.
5 % 5 % 33 %	Vaughan's Post Hole— 6 in., \$2,00; 7, 8 and 9 in., \$25,00 \$\psi\$ dosdis 20\$10 \$\frac{1}{2}\$ Eureka Diezers \$\psi\$ dos \$\psi\$.
ry o %	Leed's each \$2.50
5 5	Stebbins Patterns
3.	Eureka Diguers # dos \$27.00
× 1	Pulleys.  Rutleys.  dis 50 kg. o. dis 50 kg.
5	ap'd Screwdis 65&10 %
4	land Side
or E	bade Rack. dis 45 % Funches. Sector of the control
et H	remin & Call Co, a Cast Steel Drive
W 100 30	inde Rack
MANAGEMENT OF THE PARTY OF THE	ail.  Siding, Door, Wrought Brass # 5 43c, dis 50 \$ diding Door, Bronzed Wrt. Iron. \$ foot to dis 50 \$
* 100 m	iemis * Cail Co. * Spring and Check
% P	I. D. for N. E. Hangers.— Small, Med, Large. 4or 1co feet
A T	er ico feet

March 8, 1883.	
Rasor Strops.  Genuine Emerson	Shovels and Tongs. Iron and Brass Head, R. & Iron and Brass Head, P. S. Pollahed Steel, new list
Hunt's   dis space, when the space   Chapman   dis resp 2   Saunder's   dis 10   S   Torrey's   dis 20   S   dis 20   dis 20   S   dis 20   dis 2	Folianed Steel, Bow List.  Sinters.  Square Frames, by case.  Less than a case.  Sled. es and '4tone H Nelson Tool Works.  Steel Sledges.  Steel Face Sledges.
### ### ### ##########################	Defiance Metallic
Rivet Sets. dis 33\6\0 to \( \) Rods. Stalr, Brass dis 25\0 \text{Stalr} \) Brass dis 0. \( \) \$\text{Stalr} \) Black Walnut. Soc. \( \) \$\text{dos.} \( \) dis 10\0 \text{Stalr} \) American Patent dis 20\0 dis 25\0 dis	Stearns'
Rollers. Barn Door, Sargent's list	Bonney's Stearns' Ives'Ne. I, \$15.00; N Deuglass' Spoons.
Rope. Mnfs List, Jan. 91, 1883	Riveted Table and Tea Solid Table and Tea
Active Cases	Britannia. Reed & Barton. Holmes. Bosth & Haydens German Silver. Cast Steel, Silver Pinted Tin (P. S. & W.), Teas. Tin (P. S. & W.), Tables. Tin (Cowles Hdw Co.), Case Steel, and Divide a
Shall. Hay Rope Human Shall Ha	Tin (P. S. & W.), Tables Tin (Cowles Hdw. Co.), Tin (Cowles Hdw Co.), case Stocks and Dies. Lightning" Screw Plate.
Raifes.  Chapin's dis 70810 \$ dis 45810 \$ Stanley.  Stapletin dis 70810 \$ dis 458 5 \$ Stanley.  Stapletin dis 70810 \$ dis 558	Hindorian No v to: Ave
self Heating. Tailors	Washita Stone Washita Stone, Washita Stone, Slips. Arkansas Stone No. 1, 4 to Arkansas Stone No. 1, 6 to Turkey Oli Stone (Chase)
Staphens.  and froms.  Wrom 4 to 10.  By Baylor net belf Heating.  By Gas Sa.co net belf Heating.  By Cott's Irons. Doubled Pointed.  Gas Sa.co  Sa.co Tot's Irons. Doubled Pointed.  Gas Sa.co  Sa.co Tot's Irons. Square Back.  Sa.co Tot's Irons. Square Back.  Sa.co Tot's Irons.  Sa.co Total Sa.co  Sa.	Turkey Oil Stone (Chase) Turkey Slips (Chase) Lake Superior (Chase) Lake Superior, Slips (Chase Grindstones, Family, Lorin Stove Polisk.
Sand Paper, Radder & Adamson's Flint, co to 146 84.75 F ream Faceter & Adamson's Flint, 2, 246 & 3, 5, 24 F ream Faceter & Adamson's Flint, 2, 246 & 3, 5, 24 F ream Faceter & Adamson's Flint, Assorted. 47.8 F ream Faceter & Adamson's Emery F ream \$6.00 in. 40 Faceter & Adamson's Emery F ream \$6.00 in. 40 Faceter & Flint & \$4.76 K.34 F ream & \$13.5 K Faceter & Flint & \$4.76 K.34 F ream & \$13.5 K Faceter & Flint & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K.34 F ream & \$13.5 K Faceter & \$4.76 K R R R R R R R R R R R R R R R R R R	Stove Polish. Joseph Dixon's. Gem. Gold Medal. "Mirror"
Farties Harrison, \$1.75 \( \psi \) ream \( \text{dis 35.8} \) \( \text{Vew England same list as B. \( \text{d. A. Flint.} \) \( \text{dis 35.8} \) \( \text{Gage}^2 \) \( \text{dis 36.8} \) \(	Ruby. Rising Sup. Dixon's Plumbage.  **quares. Steeldis to \$:
Sash Cord.	Nickel Plated
Silver Lake, Drab Cotton  Eaw Hide, W foot, ¼ in, 50; 5:16 in, 70; % in, 100;  Steel Ribbon. dis 10 %  Snah Locks.	Winterbottom's 1rv and a Tracks, Hrads, Ric. 1 New List, Sept. 1, 1852. Tinned Swedes Tacks. Tinned American Tacks. American Tacks. American Copper Tacks and Nalis. Support Tacks and Nalis. Support Tacks and Nalis. Support Tacks and Nalis. Trunk and Laoe Tacks, Tin Finishing Nalis. Trunk and Clout Nalis. Common and Patent Hradi Basket Nalis.
Snah Locks.  Clark's, No. 1, \$10.00; No. 2, \$5.00 per gross dis 33½ \$7.00 per gross dis 33½ \$7.00 per gross dis 33½ \$7.00 per gross dis 32½ \$7.00 per gross dis 35½ \$7.00 per gross dis 25% sorthup Window Springs dis 25% sorthup Window Springs dis 25% sorthup Window Springs dis 25% per gross dis	American Cut Tacks Copper Tacks and Nails Swedes Hungarian Nails Gimp and Lace Tacks
The Perfect, Clark & Smith, Plain Jap. # gro. \$10.00 net The Perfect, Clark & Smith, Por. K'b Jap. # gro. \$14 net the Perfect, Clark & Smith, N-Plated. # gro. \$27.00 net Universal  dis to \$  act. Walebra.	Finishing Nails. Trunk and Clout Nails. Common and Patent Brade Basket Nails.
Mash   Weights   Solid Eyes, in von blos and over   # b 1% cnet	Brush Tacks. Leathered Carpet Facks Cigar Box Nails Chair Nails Double-pointed Tacks
DIAGN B	Tap Borers. Common and Ring Ives' Tap Borers Enterprise Mfg. Co
Disston's Circular, Will and Cross Cut. dis 40 % bisston's Hand, Panel, Rip, &c. dis 20 % Roynton's Lightning Cross Cuts, new list. dis 40 % Roynton's Circular and Mill. dis 40 %	Tapes, Measuring. American. Spring. Chesterman's.
Boynton's Leedis 35 g conton's Lightning Hand. Panel and Ripdis 35 g wheeler & Clemson Mfg. Co.'s Handdis 30 f w. M. & C. Mfg. Co. Cross Cutsdis 30 g Livingston's Butcher and Kitchendis 30 g	Thermometers. Tin Case.  Tobacco Cutters. Enterprise Mfg. Co. (Cham) Wood Bottom.
jos nton's Ice goriton's Italianing Hand, Panel and Rip. dia 25 g Naceler & Ciemson Mfg. Co.'s Hand. dia 25 g Naceler & Ciemson Mfg. Co.'s Hand. dia 26 g Naceler & Ciemson Mfg. Co.'s Hand. dia 26 g Livingston's Butcher and Kitchen. dis 26 g Livingston's Framed Wood- Nos. 101 12 12 12 12 12 12 12 12 12 12 12 12 12	All Iron Nashua Look Co.'s Wilson's Clipper (Sargent & Co.)
Richardson's Mill and X Cutdis 40 %	Toe Cniks. Winsted. Tinners' Tools and Machines (P. S. & W.) Tools (P. S. & W.)
Saws	Transom Litters. Wollensak's Patent Reiher's Patent, new list, 1
Name Made.	Traps. Game, Newhouse Game, Onelda Pattern. Game, Blake's Patent. Mouse, Wood, Choker. Mouse, Round Wire. Mouse, Gage, Wire. Mouse, Carch-en-alive. Mouse, Carch-en-alive. Mouse, Carch-en-alive. Rat, "Decoy"
Stilman's Imitation.	Mouse, Round Wire
Hammer, Bemis & Call Co.'s new Patentdls 30&x 5 iemis & Call Co.'s Lever & Spring Hammer. dls 30&x 5 femis & Call Co.'s Patedls 10 5 femis & Call Co.'s Cross Cutdls 12\structure & dls 12\struct	Lothrops' Brick and Plaste
Boynton's Patent X Cut, per dos, \$12.00: Hand Saw	Disaton's Brick and Plaster Peace's Plastering. Clement & Maynard's. Rose's Brick Brades' Brick Worrall's Brick and Plaste Garden.
Scales	Garden
Elehić Bros	Vises. Solid Box
Scales	
Scrapers.  Adjustable Hox Scraper (S. R. & L. Co.), \$6. so, dis zo&ios.  For Handle	Paraliel, Merrill's
Scrapers.  Adjustable Box Scraper (S. R. & L. Co.), \$6.50, dis zoakto for 1 Handle.  \$\tilde{\text{th}} \text{ dos \$\text{\$\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\text{\$\tilde{\tilde{\text{\$\tilde{\tx}\$\$}\tilde{\text{\$\tilde{\tx}\$\$}}}}}} \text{\$\tilde{\text{\$\tilde{\tx}\$}}}}} \text{\text{\$\tilde{\tx}\$}}}} \text{\$\tilde{\tx}\$}}} \text{\$\tilde{\text{\$\tilde{\tilde{\tx}\$}}}}} \text{\text{\$\tilde{\tx}}}}} \$\tilde{\text{\$\tilde{	Parallel, Double Screw Leg Parallel, Frentiss
Screw Cerners   Forter's Pat Window and Door Frame   dis 33½     Screw Drivers   Origins Mig. Co   dis 20&10&10     Origins Mig. Co   dis 20&10&10     Origins Mig. Co   dis 20     Origins Patent Excelsion   dis 40     Origins Patent Excelsion   dis 25     Origins Patent Excelsion   dis 25     Origins Patent Excelsion   dis 25     Origins   Origins   dis 25	Solid, Wilkinson's Paraliel, Parker's Paraliel, Wilson's Paraliel, Howard's Paraliel, Howard's Paraliel, Basquat's Paraliel, Basquat's Paraliel, Basquat's Paraliel, Paraliel, Paraliel, Paraliel, Paraliel, Prentiss Paraliel, Pientiss Paraliel, Simpson's Adjust Saw Filers, Bohner's Saw Filers, Bohner's Saw Filers, Bohner's Saw Filers, Hopkins' Saw Filers, Hopkins' Cowell Hand Vises Richardson's Vise and Abv **Wasser ('interer')
Stanley Rule & Level Co.'s, Varnished Hdlsdls took to \$	Wasser ('utters. Smith's Patent. Johnson's Penny's & d Appleton's
Sargent & Co. s	Washers, See Nuts and Well Wheels
Champion dis 25 % Clark 5 Patent disparent for the	Brass and Copper
Norwa.  Fiai Hd Iron, new list, Dec. 27, 1882 dis 50%10 7  Eound Head Iron, new list, Dec. 27, 1882 dis 46%10 8  Fat Head Brass, new list, Dec. 27, 1882 dis 46%10 8  Eound Head Brass, new list, Dec. 27, 1882 dis 46%10 8  Fases and Silver Capped dis 46%10 8  Lapanned, list of Pfain Norews dis 46%10 8  Lapanned, list of Pfain Norews dis 66%10 8  Fases, Fatent Gimiet Point 65%10 %, by the Reg, dis 70%  Coach, Common of Lag dis 66%40 8	Wire. Brass and Copper. Market, Bright and Anneal Market, Coppered. Market, Galvanised. Market, Galvanised. Market, Tinned, Tinned list Stone, Bright and Annealed. Stone, Gright and Annealed. Stone, Galvanised, Nos. 19 t Stone, Tinned, Tinned list Tinned Broom Wire. Cast Steei Wire. Annealed Grape, Nos. 10 to 19 Fence Skapies.
Common or Law   Common or La	Cast Steel Wire
Sanch, Iron. 4 dos \$5,50 dos \$6,50 d	Fence Staples. Galvanised. Fence Staples, Galvanised. Stubs Steel Wire. Japanned Barb Fence Galvanised Barb Fence Steel Music Wire, Nos. 7 to 3
Ser. (Wilson's). dis 25 % Ser. (Wilson's). No. 1, \$2.10; No. 2, \$1.75; No. 3 6.50. Wilson's	Japanice Dark Fence
Lester, Stood	Wrenches, American Adjustable Baxter's Adjustable "S," li Baxter's Diagonal. Cues' Genuine Coes "Mechanics" Coes' Pattern, Malleable Coes' Pattern Wroughs
Section 1 Section 2 Sectio	Coes' Pattern Wroughs Girard Standard
American Cast) Iron dis 70 s  mining ace Pruning flooks and Shears.  arrang's Lump Trimmers. W dos 6:75  floores' dis 6:75  flo	Girard Standard. Girard Ag. Bemis & Call's Patent Comb Bemis & Call's Merrick 'sPai Bemis & Call's Call's Call Bemis & Call's Call's Call Bemis & Call's Call Call Call's Call Call Call Alken Pocket (Bright). The Favorite Pocket (Bright). Webster's Patent Combinati.
bling Door, R. & E. Hist. dis soct of 2 % bling Door, Patent Roller. dis foot to 2 % bling Door, Patent Roller, Hatfield's dis foot to 2 % bling Door, Patent Roller, Hatfield's dis foot to 2 % bling Door, Russell's Anti-Frietion. dis foot to 2 % bling Door, Russell's Anti-Frietion. dis foot 5 % bling Door, Russell's Anti-Frietion.	Wringera. Universal XX, No. 214 Universal XX, No. 2
Sheaves,  Siding Loop, M. W. & Co. list. dis 4482 %  House Boor, R. & E. Hat. dis 500 to 62 8  House Boor, Patent Roller, House, dis 600 to 82 8  House Boor, Patent Roller, Hatfield's. dis 600 to 82 8  House Boor, Patent Roller, Hatfield's. dis 600 to 82 8  House Boor, Patent Roller, Hatfield's. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 82 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 83 8  House Boor, Hatfield St. dis 600 to 84 8  House Boor, Hatfield St. dis 600 to 84 8  House Boor, Hatfield St. dis 600 to 84 8  House Boor, Hatfield St. dis 600 to 84 8  House Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield St. dis 600 to 84 8  Hatfield Boor, Hatfield B	Webster's Patent Combinat Wrinagers. Universal, XX, No. 2½. Universal, XX, No. 2½. Universal, XX, No. 1½. Universal, XX, No. 1½. Universal, XX, No. 1½. Peerless, with Cogs, No. 1. Peerless, with Cogs, No. 2. Peerless, with Cogs, No. 2. Peerless, with Cogs, No. 3. Peerless, No. 3, for Common Novelty No. 3, for Common Novelty No. 3, for Common Excelsion No. E, for Station Excelsion No. E, for Station Excelsion No. A, with Foldit Excelsion No. E, with Foldit Excelsion No. E, with Foldit
Movels and Spades.  Anone and Spades.  Anone with July 1, 1881 dis 10 %  104 Colony dis 105 %  Faying Pettebone & Son, new list dis 4, 2, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,	Eureka, No. 2 Noveky No. 3, for Common ' Noveky No. 3, for Common ' Excelsior No. E. for Station Excelsior No. E. for Station
od Colony dis 1, 5 Payne Pettebone & Son, new list dis 4, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 1, 5 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. R. Shovels dis 5, 6 Payne Pettebone & Son, R. Shovels dis 5, 6 Payne Pettebone & Pettebone	Excelsior No. 4, with Folding

		Г
5	Shovels and Tongs.  Iron and Brass Head, P. & E. list. dis 6o&ro&r & Iron and Brass Head, P. & & W. dis co&ro&r & Pollshed Steel, now list. dis co&ro&ro&ro	
××	Iron and Brass Head, P. S. & Wdis to take to ? Pollahed Steel, new listdis to & to & 2 % Hinters.	
KKKKK	Les than a case. dis 642 to 5	
S.	Single of the second of the se	
16.00	Spoke Shaves.   dis 20&10	
×	Wood. dis 30 % Bailey's (Stanley E, & L. Co.), new list. dis 30 % to 3 Stearns' dis 30 % to 9	
75.75		
K	Bonney's \$\psi \ \psi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1
0	Basting dis 60&10 8	
0 0	Speens   Gale	
000	German Silver dis 3061085 f	
000	Tin (P. S. & W.), Tables \$1.25 \pi gross, net Tin (Cowles Hdw. Co.). dis 10 5	1
×	Stocks and Dies. dis 58 to 6 Lightning Screw Plate dis 58 to 6	
×	"Lightning" Screw Plate dis 10 5  Stene. Hindostan No. 1, 6c; Axe, 8c. dis 40 8  Hindostan Hacker Stone. F gross \$12.00 dis 10 8  Sand Stone. F b b c, dis 345-86 10 8  Washita Stone. No. 1, 4 b c c nei Washita Stone. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Washita Stone, Slips. No. 1, 8 b 200 nei Markey Slips (Chase). 4 to 8 in. 8 b 200 nei 10 8 10 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
8 11 2	Sand Stone. # B 6c, dis 33/26 to 9 Washita Stone No. 1, # B 20c nel	
英鬼鬼	Washita Stone, Slips. No. 1, # B 400 net Arkansas Stone No. 1, 4 to 6 in. # B \$1.35 net	
NXXX	Turkey Oil Stone (Chase)4 to 8 in., # B, 60c, dis 10 % Turkey Slips (Chase)	
K	Lake Superior (Chase).   Lake Superior, Silps (Chase).   Grindstones, Family, Loring's   dis 10 %	
DE 5 W	Grindstones, Family, Loring's dids of S Stove Polisis. dissort Joseph Dixon's degrees \$6.00, dis to 5 Gem degrees degrees \$6.00, dis to 5 Ged Medal degrees \$6.00, dis 25 "Mirro" degrees \$6.00, dis 25 Ruby Pgross \$6.00, dis 25 Ruby Pgross \$7.5, net Rising Sup degrees \$7.5, net Dixon's Plumbage degrees \$7.5, net \$6.00 dis 0.5  **General Company of the Second	
ji.	Gold Medal. # gross \$6.00, dis 25 % "Mirror" # gross \$6.00, dis 5 % Ruby # gross \$7. net	
X X X	Rising Sun. # gross \$4.75, net Dixon's Plumbage. # 5 sc. net	
ę	Steel	
1 % %	Steel. dis 50 %; full cases, dis 50 %; 0 %; 0 %; 0 %; 1 %; 0 %; full cases, dis 50 %; 0 %; 0 %; 0 %; 0 %; 0 %; 0 %; 0 %	
x x	Vinterbottom's Try and Mitredis 202 io %	1
*	Tinned Swedes Tacks	
M. S. t.	American Cut Tacks dls 30 % Copper Tacks and Nalls dls 30 % Swedes Hungarian Netter	
200	Gimp and Lace Tacks	
tt	Trunk and Clout Nails	1
8	Winterbottom's Trv and Mitre	1
44	Chair Nails	1
4 4 4	Tap Borers. Common and King. Ives Tap Borers. Let 154:108 Enterprise Mig. Co. dis 25 5	l'
	Enterprise Mfg. Co	1
-	Tapes, Measuring.   dis 20	
	Thermometers.	1
ĺ,	Enterprise Mfg. Co. (Champion)	1
	Tobacco (latters,	1
	A de Carreno	
	Tinners' Tools and Machines. Machines (P. S. & W.)	
	Transom Litters. Wollensak's Patent. dis 35 %	8
-	Reihers Fatent, new Hat, Feb., 1882dis 20% 10% 10 % Excelsiordis 40% 10% 2 % Trapsdis 40% 10% 2 %	8
	Excession	1
4	Mouse, Round Wire. # doz \$1.50, dis 10 % Mouse, Round Wire. # doz \$1.50, dis 10 %	
	Mouse, Catch-em-alive. # doz \$2.50, dis to \$ Mouse, "Bonanza". per gross \$10 00 uet	Y
-	Trewels. Lothrops' Brick and Plastering dis 25 % teor's Brick and Plastering dis 15 % teor's Brick and Plastering dis 15 % Disston's Brick and Plastering. dis 20 % Peace's Plastering. dis 20 % Clement & Maynard's. dis 20 % Clement & Maynard's. dis 20 % Rose's Brick. dis 25 % Brades' Brick dis 25 % Garden. dis 25 % Garden. dis 55 % Garden. dis 55 % Garden.	H
	Disaton's Brick and Plastering dis 20 8 Peace's Plastering dis 20 8	0
-	Clement & maynard's	1
		0
	Butter and Cheesedis 25 % Trucks (Warehouse, &ce. Penfield Block Co.'s list, 1882dis 35 %	
	Vines.	
	V Solid 160% dis 4 % Solid "Crown" (A. H. Hildick). 40 to 100 %, 15c liet Solid, Peter Wright's 1546 Solid, Wilkinson's 1446 Solid, Wilkinson's 1446 Solid, Wilkinson's 1446 Solid, Wilkinson's 1446 Solid S	
	Paraliei, Parker's	
1	Parallel, Barrill's	
	Parallel, Oval Silde.	
-	Faralier, Sangson's Adjustable	
1	Saw Filers, Hopkins*       # dos \$17.50, dis 10 \$         Saw Filers, Reading       # dos \$27.50, dis 10 \$	
	Cowell Hand Vises. dis 20 % Richardson's Vise and Abvil. dis 25 %	tl
1	Masser   Chiteres	it
	by mamora See Nuts and Washers.	
-	Wire.	-
1	Market, Bright and Annealed div 52/6 6 5 5 Market, Coppered dis 47/6 6 5 5	(
1	Market, Tinned, Tinned list	
	Stone, Bright and Arnealed, Nos. 19 to 30.018 62 674 Z Stone, Galvanized, Nos. 19 to 30.018 62 674 Z Stone, Galvanized, Nos. 19 to 30.00000000000000000000000000000000000	
1	Stone, Tinned, Jinned list	-
	Annealed Grape, Nos. 10 to 14. dis 52% 66 55 % Fence Staples. # B 53% 6 52%	T
1	rence stapies. Galvanised. \$ 5 7 \(\tilde{e}\) 5 tubs Steel Wire. \$6.00 to £ dis 30 \$ Japanned Barb Fence. \$ 8 6	A
1	Wire.  Wire.  Brass and Copper.  dis 30 x Market, Bright and Annealed div 20 6 6 5 2 Market, Coppered dis 27 6 6 5 2 Market, Tinned, Tinned Hist.  Stone, Bright and Annealed, Nos. 16 to 18 dis 20 6 5 5 5 5 5 5 5 0 0 dis 27 6 5 1 0 dis 27 6 6 5 5 5 5 0 dis 27 6 1 0 dis 27 6 6 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	of be
1	Ciotnes Line Wire, Galvanized & coli 25 & 400 net Wire Cloin, green, drab and black & sq. ft., she net Wrenches.	Be
	American Adjustable S, list Jan., 1880	Ical
	Wrenches, des and seasa page 18, 19, 196 be Wrenches, des and 18 set 5 and 18 set 5 and 18 set 7	
	Coes' Pattern Wrought dis to 6 5 5 Girard Standard dis to 6 5 5 Girard Standard dis coil 6 Girard Agl	
	Bemis & Call's Patent Combination. dls 20 5 Bemis & Call's Merrick 'sPattern dis 35 5 Bemis & Call's Brigg's Pattern dis 35 5	Sa by Al
1	Bemis & Call's Cylinder or Gas Pipe dis 40 % Van Wagoner & Williams' Basin & dos \$4.50 Atken Pocket (Bright)	
	Girard Standard discosite 8 Girard Agi Pavent Combination discosite 8 Girard Agi Pavent Combination discosite 9 Bennis & Call's Pavent Combination discosite 9 Bennis & Call's Berigg's Pattern discosite 9 Bennis & Call's Chingr's Pattern discosite 9 Bennis & Call's Bennis Bennis discosite 9 Bennis & Call's Bennis di	Gi
1	Universal XX No. 214. Per dos. Universal XX No. 2 45.00	I
	Universal, XX, No. 156. \$4.00 \$70 Universal, XX, No. 1. \$9,00 g.# Peerless, no Cogs, No. 1. 42.00 gra	AL:
	Peerless, with Cogs, No. 25 45.00 98 Peerless, with Cogs, No. 2. 45.00 98 Peerless, with Cogs, No. 3. 51.00	6
	Webster's Patent Combination dis 2: 5  Wringers. Per dos. Universal, XX, No. 2: 45.00 Universal, XX, No. 1: 50.00 Universal, XX, No. 1: 50.00 Universal, XX, No. 1: 50.00 Peerless, with Cogs, No. 1: 42.00 Peerless, with Cogs, No. 2: 45.00 Peerless, with Cogs, No. 2: 45.00 Peerless, with Cogs, No. 3: 45.00 Peerless, No. 3: 50.00 Peerless, With Cogs, No. 3: 50.00 Peerless, With Co	1
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Sheveis and Tengs.  Iron and Brass Head, R. & E. list. dis 60&ro&r \$ firon and Brass Head, R. & W. dis 60&ro&r \$ firon and Brass Head, P. S. & W. dis 60&ro&r \$ firon and Brass Head 60 & firon and Brass Head 60 & firon en	l
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Wood. dis 30 % Balley's (Stanley & & L. Co.), new list dis 30% to % Stearns'	3
Speke Triumers.   9 dos \$10.00, dis 4085 5	A
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Stone	to
Turkey Oil Stone (Chase) 4 to 8 in., \$\psi\$ 0, 0c, dis 10 \$\frac{7}{2}\$ Turkey Slips (Chase) \$1.7, \$\psi\$ dis 10 \$\frac{7}{2}\$ Lake Superior (Chase) \$\psi\$ 5 to 4 is 10 \$\frac{7}{2}\$ Lake Superior, Slips (Chase) \$\psi\$ 0, 0 is 10 \$\frac{7}{2}\$ Grindstones, Family, Loring's dis 10 \$\frac{7}{2}\$ Stove Polish \$\psi\$ gross \$6.00, dis 10 \$\frac{7}{2}\$ Grindstones, \$\psi\$ and \$\psi\$ \$\p	
Stave Polish.  Joseph Dixon's.  Joseph D	A
Squares     Steel   dis 50 %; full cases, dis 50 %   2 %     Iron   dis 50 %; full cases, dis 50 %   2 %     Iron   dis 50 %; full cases, dis 50 %   0 %     Iron   dis 50 %; full cases, dis 50 %     Nickel Plated   add \$2.50 % \$4.00 % dos, net     Try Square and T Bevels   dis 50 %     Winterbottom's Try and Mirre   dis 50 %     Tacks, Brads, &c.     New List, Sept. 1, 1892.     Tinned Swedes Tacks   dis 50 %	
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Common and Ring	F
Tapes, Measuring.  American.  Syring.  dis 20 %  Syring.  dis 24% to \$  Chesterman's.  dis 30% 2½ %  Thermometers.  Tin Case.  dis 75 %	F
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an Wagoner & Williams Basin \$4 dos \$4.50 liken Pocket (Bright) \$5.00, dis 50% of Favorite Pocket (Bright) \$4 dos \$8, dis 50 % (ebster's Patent Combination dis 25 % Wringers Per dos riversal XX No. 244 Per dos	G &

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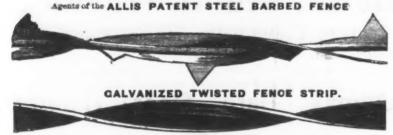
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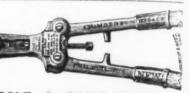
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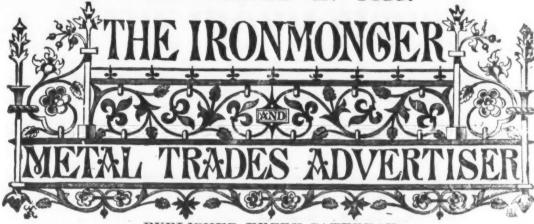
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This is an annual, presented (ree to every Subscriber to the IRONMONGER AND METAL THADES' ADVERTISER It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied fro a year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

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With which is incorporated The Universal Engineer,

with which is incorporated The Universal Engineer,
is published every fourth week in connection with the extensive and world-wide circulation of the Ironmonger itself. The dates of its publication for the next twelve months will be as follows:

MARCH 3 and 31, APRIL 26, MAY 26, JUNE 23, JULY 21, AUGUST 18, SEPTEMBER 15, OCTOBER 13, NOVEMBER 10, DECEMBER 8, 1884, and JANUARY 5, 1884.

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of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the Ironmonger not only within reach, but in the native language of eighty millions of German, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

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so far as our experience of more than twenty years is concerned, will be covered by The Foreign Supplement at least twice a year. Thus a Price List Advertisement inserted in the Ironwonger and Foreign Supplement is a strikingly powerful and most efficient way of publicity, not to be compared with any of the other ordinary channels of communication.

ELBA IRON & BOLT CO., Limited. BONGARDT BROS. & CO., MANUFACTURERS OF

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Skelp Iron, Splice Bars, Railway Track Bolts, Car. Bridge, and Machinery Bolts, Nuts, &c.

We invite the attention of RAILROAD MEN especially to our make of SPLICE BARS and Track bolts. Using the best brands of REFINED IRON, and paying close attention to the finish of our manufactures, we are a sabled to offer our patrons BOLTS, NUTS, SPLICE BARS &c., of excellent quality. Our works have been enlarged within a few years; all orders are now executed with prompt-

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Having extended our producing facilities, we serie to direct attention to our improved special desire to direct attention to our improved special-ties, among which we would mention, Cast Steel for rock drills, which gave highly satisfactory re-sults on the St. Gothard Line; Steel Hammers; Anvils (warranted); Tool Steel; Steel Wire; Iron Wire (best, best); Wire for Springs, Cables, Needles, Corsets, &c.

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Light Machinery Forgings a Specialty. Estimates furnished, and all work executed promptly at the most reasonable intes.

Nos. 215 & 217 Main Street. ALLEGHENY, PA.

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KEYSTONE SAW, TOOL, STEEL & FILE WORKS,

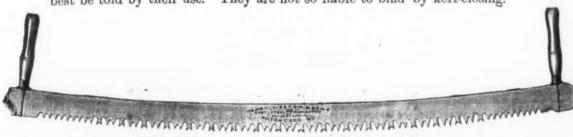
Front and Laurel Streets.

PHILADELPHIA.

## TRIUMPH.

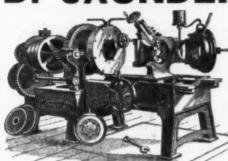
NARROW CROSS CUT SAW, WITH HANDLES COMPLETE.

these Saws have been made by us for years, and their utility for cutting down trees can best be told by their use. They are not so liable to bind by kerf-closing.



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Pipe Cutting and

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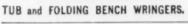
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Pressure obtained by means of pivoted levers acting on lower roll. Undoubtedly the best principle ever

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Swivel Hooks for Rope or Chain, POLISHED GROOVES, ALL SIZES IN STOCK. Also Pulley Blocks for Wire Rope,

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THE CLOBE MFC. CO., Middletown, Conn., U. S. A.



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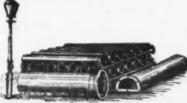
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Trimmer. Unsurpassed for capness and durabili-Unlike any other make, it combines a perfect lever principle with a blade working in a slotted steel hook. Send for illustrated

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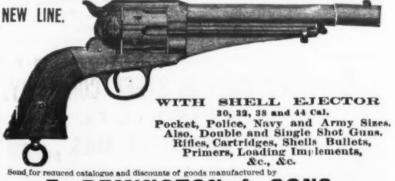
These "Chinese" Laundry Irons, are of superior quality, made from the best pig iron, highly finished, and rounded on edges, having Wrought Iron Handles, with neatly molded Tops of Cast Iron.

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Terms, 30 days. For 60 or 90 days, interest added at per cent. per annum.	10%
Anvils. Peter Wrights. # D	11/40
Apple Parers	net
Lots of 10 to 25 dozen special prices Bay State Peach Parer	<b>B</b> 9 00
Hunt's Kentucky and Yankee.per gos \$10.00 (d) Robert Maun	10,50
Xees	net 20.00
ngers and Auger Bits.—New List January 7, Bates' Nut Augers	1880 10 %
Double Bit Axes. are signore suggests and Auger Bits.—New List January 7, Bates' Nut Augers. dis 40 cook's Augers. dis 40 watrous' Ship Augers. dis 40 watrous' Ship Augers. dis 60 griswold Auger Bits. dis 60 griswold Auger Bits. dis 40 cook's dis 40 cook	40%
Cook's dis 40d Jennings' dis 1,0 rd Bonney's Pat. Hol. Augers, list \$45 \(\pi\) dos., dis 20, Stearns' Pat. Hol. Augers, list \$45 \(\pi\) dos., dis 20,	10 % 2013
Stearns' Pat. Hol. Augers, list \$45 \( \psi \) dosdis 202 Balances. Light and Commondis 156	kie %
Bells.  Bevin Bros. Mfg. Co. Light Hand Bells dis 6c/ 8wiss Pattern Hand Bells low list dis 9c/ Connell's Door Bells dif Gt. Western & Kentucky Cow new list dis	kro %
Connell's Door Bellsdie Gt. Western & Kentucky Cow new listdie	10 %
iering Machines. Upright, without AugersList 5.50 dis 450 Angular, without Augers	0.50 €
Philadelphianew list dis 708 Staniey, Wrought Shutter	80 % tio %
Packus dis c	40 F
American Balldie	1 55 % E10 %
Cast Loose Joint, Narrowdis 55	tio %
American Ball direction Ball  Butts.—Cast Fast Joint, Narrow direction di	CIO %
Table Hinges and Back Flaps dis 454 Narrow Fast dis 454 Loose Joint dis 454	10 %
llind Butts. Parker	dis
Parker. Cuark. Shepard. Luit & Porter. Huffers. dis you	.dis
hains.—German Halter and Coll. list December	31.
Galvanised Pump	net
Hunters	n.
Plate. dis 400    1880. dis 100   1880. dis 10	10 %
Enterprise du Outlery.—Walden Pocket new lis Penna. Knife Conew lis	net t net
Landers, Fracy & Clark, J. Russell & Co., Lams Goodnow Mfg. Co. and Meriden Cutlery Co., M facturers' prices net.	on &
Hart Mig. Co.'sdis 655	£10 %
Fy Pans. (III) Tinned (III) W dos.53.50 4.50 4.50 5.50 6.50 7.50 9.00 Burnishes (III) Burnishes (III)  Burnishes (III)	45 %
# d(#.#3,40 4.50 4.00 5.40 6.00 7.50 9.00 No 0 1 3 3 4 5 6 Burnished	10.00 8 65 %
Fo 0 2 2 3 4 5 6 7	8
Microison di Disseon di Butcher &	40 % 8 40 % 8 50 £
Bario	825%
We mount to make Whaten & God From	8 25 76
Favorite com Futer & Sad 1703. # dos \$10.5 # Sammers. Yerkes & Plumb's new list	30 % 8 15 %
Boynton Loop Handles Crosscut33c pai	rnet
Yorkes & Plumb, new list	1 30 \$
Strap and T	2 or 2
Vulcan	250 % 3355 %
### ##################################	1316 % 1316 %
lay and Straw Knives. Lightningper doz, net :	818.00 16.00
Wadaworth	17.00
Branford	cash cash
Walton Straw Kulves	8 60 %
No	8 60 %
TubularNo. o, \$8.65; No. 1, \$10.15 @ do Guards, 3s cents extra per doz, pet.	t net a net
No	w list
Lawn and Garden Pamps.  Holland Patent	s to %
Tong and Short Cutter	.40 % B 40 %
Stebbins Gates dis 70 Lincoln's dis 50 L	8 10 % & 10 %
Brass Liquor Cocks, new list Jan. 1 1880, di	8 45 % 8 70 %
Dixon's	5&5 % 5&5 %
Hale's new list, dis 50, 10-22 American dis	Cash 1 25 %
Enterprise Stuffers	8 25 % 8 20 %
Ohio & Auburn	8 20 K
Butcher's	\$5.00 \$5.00
Non-Adjustante	#10 %
Lamont Combinationper ior.	842.00
Imitation Emer-on	RIO S
# dos \$14.50 17.75 21 00 26.50 31 00 Lbs \$6 100 150 200 250 American Pattern	35.50 300 #10 %
₩ doz\$8.00 10.25 13.75 14.60 16.75	19-50
Steel and Irondis 50 %; full case, dis 50 Try Squares, Stanley	& 10 % & 10 %
Scythes.—Golden Clipper, Damascus Blade, Bor and Sharpened	eeq
Sharpened & dos \$8.5	0 34
Sharpened a dos \$8.0	
Disston's Circulardi	is 40%
Ousston's Circular	18 40% 18 40%
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Ousston's Circular. di Cross-Cut No. z. Plain Tooth. d " Patent Tooth. d " Champion Tooth. d Boynton's Lighting Cross Cut, new list. di	18 40% 18 40%
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March 8, 1883.	T
PHILADELPHIA.	Round Head Brass, new list Dec. 27dis. 40 & 10 % Round Head Iron, new list Dec. 27dis. 45 & 10 %
Corrected Weekly by Lloyd, Supplee & Walton.)	Round Head Iron, new list Dec. 27dis. 45 & 10 %
terms, 30 days. For 50 or 90 days, interest added at 10% per cent. per annum.	Round Head Iron, new list Dec. 27.   dis. 45 & 18   Sepouse.
Peter Wights,	Springs.   Torrev   dis 40&10 % 7   Gem No. 3 small Jap'd   \$2.00 dis 50 % 3
Olohe Apple Pearers #6.00 net	Coll No. o. per gross net
Penn Apple Parers	Standard Spring Hinges— Single No. o, per doz. net
Hunt's Kentucky and Yankee. ser dos \$10.00 (d 10.50	Other Standard Spring Hinges. dis 240 to 5
Robert Maun.	Steve Pellsh
Augers and Auger Bits.—New List January 7, 1880. Bates' Nut Augers	Treks
Cook's Augers	Praps. Genuine Oneida—Newhouse
Cook a Augers. Ship Augers. Ship Augers. Ship Augers. Ship Auger Bits. Ship Auger Bits Ship Auger Bits Augers, I ship Augers, I s	Im. Oneida—Newhouse list. first qual.dis 55&5 @ 50 \$\ Visess.—Solid Box Trentou new list
Bonney's Pat. Hol. Augers, list \$48 \ doz. dis 25&10\ Steams' Pat. Hol. Augers, list \$46 \ doz. dis 20&10\ X	Traps    Genuine Oneida
Balances. Light and Commondis 15&10 % Bells. Parts Bros. Mrg. Co. Light Hand Ballsdis 45&20 %	Wire.  Bright or Ann'd, Ne, o to 18 dis 50 to 52 4 5 2
Bella.  Bevin Bros. Mfg. Co. Light Hand Bells dis 6c&to \$\( \)  Swiss Pattern Hand Bellslow list dis 40&to \$\( \)  Connell's Door Bells	Coppered, o to 18
	Galvanized Barb Wire
Upright, without Augers. List \$50 dis 45@50 \$4 Angular, without Augers. \$6,75 dis 45@50 \$4 Angular, without Augers. \$6,75 dis 45@50 \$4 Angular, without Augers. \$6,75 dis 45@50 \$5 Angular, without Augers. \$6,75 dis 45@50 \$5 Stanies, Wrought Shutter. \$6,75 dis 50%10 \$5 Stanies, Wrought Shutter. \$6,75 dis 50%10 \$5 Stanies, Wrought Shutter.	Wringers, Petriess No. 2½
Stanies, Wrought Shutter	No. 2-15. 42.00 14.00 14.00 14.00 14.00 15. 44
Braces.	Excelsior E, for stationary tubs, \$1.00
American Ball	in lots of 1 dos. \$3.00 dos. dis. From above price,
# Acorn. Loose Pin	PITTSBURGH. Merchant Iron. TERMS.—Note or acceptance at 60 days, with current
Wrought Loose Joint	rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within 10 days from date of invoice.
Narrow. Fast	For fluctuations and discounts s
Bitud Butts.         dis           Parker.         dis           Clark.         dis           Bhopard.         dis           Luii & Porter.         dis yokrot	on card rates see weekly Pitts- burgh Trade Report.  The following are card rates.
BULLET B	# Flat Bar. 136 to 4 by 36 to 1 tinch
Uhnins.—German Halter and Coll. list December 31. 188: dis 45% 50 % Galvanized Pump. # h older net	134 to 6 by 154 to 154 " 2.96 F 154 and 134 by 34 to 34" 2.96 1 and 134 by 34 to 34" 2.26 S
Charles - German Halter and Coll. list December 31.     1880:	% % and % by % to % inch
Chiaple.—Socket Framing	2 to 254
District so - Dod (now has suly 1, 1000,	\$\\\ \begin{array}{cccccccccccccccccccccccccccccccccccc
Petron Mills.—Box and Side, new list jan. 1.  1880	Durch Trade Report.   State
Cuttery.—Walden Pocket	% to % " 3.70 % "
facturers' prices net.  Drawing Knivos.	74 Inch. Nos. 13 and 14
Drawing Knivos.         dis 648:05           Hart Mfg. Co. **         dis 548:05           Adjustable Handle         dis 15 %           Fry Pans.         dis 15 %	### Wagon Box from.  54 Inch, Nos. 13 and 14
Tinned	96 11 and 12 4.10 S Heavy Bande. 4.10 S 3/6 to 6 by 1/4 and 4-16 hola. 2.70 S
Burnished	136 to 336 by 36 and 5-16 2.70 2.80 36 to 36 by 36 and 5-16 3.80 36 by 36 and 5-16 3.80 3.80 3.80 3.80 3.80 3.80 3.80 3.80
Kiles.         dis 40 %           Nicholson.         dis 40 %           Disston         dis 40 %           Butcher.         \$4.40 £	% and % by % and 5-10 Light Bands. 3-50 1
Mindon Machines	1 to 136 by 56 to 3-15
	% and 13-16 by Nos. 11 and 12
Favorite com Fiuter & Sad Iron W dog \$10 to net	13 and 14
Hammers.	14 to 4 Nos. 13, 14 and 15.
Disston Loop Handles Crosscut	94 inch by Nos. 11 and 12. 114 to 4, Nos. 13, 14 and 15. 114 to 2, Nos. 10, 17 and 18. 114 to 2, Nos. 10, 17 and 18. 114 to 2, Nos. 10, 17 and 18. 114 to 2, No. 19. 114 to 2, No. 20. 114 to 2, No. 21. 114 to 3, No. 20. 114 to 3, No. 20. 115 to 3, No. 21. 115 to 3, No. 21. 115 to 3, No. 22. 115 to 3, No. 23.
Yorke & Plumb, new list	154 to 2, No. 23
Hinges.  Strap and T	13
Vulcan 30 23 21 20 19 18 dis 129 5 4 4 23 22 dis 335 5	% Nos. 13, 14 and 15. 3-72 % Nos. 16, 17 and 18
Clinton	36. NO. 22. 4-00 14-16 NOS. 15, 14 and 15. 4-10 12-16. NOS. 10, 17 and 18. 3.90
Lightningper doz, net \$18.00	13-16, Nos. 19 and 20. 4.10 13-16, No. 21 4.20 12-16, No. 22 4.20
Walton Straw Knives " 17.00	96, Nos. 13, 14 and 25
Branford	36. No. 21 4.30 36. No. 22 4.40 11-10. Nos. 13, 14 and 15 20
# dos. \$4,00 \$.50 6.50 7.50 8.50 10.30 12.50 dls 60 NO \$7 58 59 60 61 62 63 dls 60 % P dos. \$818.00 25.00 32.00 NO \$18.00 \$6 66 dls 60 \$	11-10, Nos. 10, 17 and 18. 4-30 11-16, Nos. 19 and 20. 4-60 11-16, No. 21. 4-60
No	11-10, NO. 22 \$6, NOS. 13, 14 and 15. 4.60 \$6, Nos. 18, 17 and 18 4.60
Laure list net; small list net Buckeye. Large list net; small list net Tubular. No. 0, \$5.65; No. 1, \$10.15 # doz net Guards, 3c cente extra per doz, net. Lawn Mewers.—Penzsylvania. ) new list	98. NO. 19 and 35 4.50 96. NO. 21 4.70 96. NO. 22 4.70 10. NO. 22 4.60
Lawn Mewers.—Ponnsylvania newliat Philadelphia dis 30 s  Excelaior. dis 30 s  Lawn and Garder Pamps.	9-16, Nos. 13, 14 and 15. 4.60 9-10, Nos. 16, 17 and 18 4.60
Holiand PatentList \$4.00 dis 10 % MattocksLong and Short Cutternew list40 %	9 10, NO. 21 4.80 9 10, NO. 22 4.90 10, NO. 22 5.00
Pennsylvania Pattern	96, No. 22
Beebbins' Gates dis zotros Lincoln's dis socros Landers, Frary & Clark's Petroleum dis zotros Brass Liquor Cocks, new list Jan. 1 188s. dis 45 & Cork Lined dis zotros	36 4 No. 21. 5.20 16 No. 22. 5.30 36 No. 23 5.30
	56 "No. 23
Dixon's         dis 25a5 %           Woodruff         dis 25a5 %           Stowe         dis 25a5 %           Hale's         new list, dis 40, 108/2 cash	to specified lengths.
American	o to 11 lbs, per sat of 6 hoops. 8 lbs, and less than 9 lbs, per set of 6 hoops.
Ogonts	"o to II lbs, per set of 6 hoops
American   Glis 25   Stuffers   Glis 26   Stuffers   Glis 26   Stuffers   Glis 26   Stuffers   Glis 26   Stuffers   Glis 25   Stuffers   Glis 25   Gents   Glis 26	No. 9 and heavier
Stanley's Adjustable	Plow Slabs
	No. 15 to 173.8c
Lamont Combination	No. 22 to 24. 4-30 5.8e 7.50 No. 55 & 55.00 4.00 7.56 No. 77. 4-70 A.00 7.56 No. 77. 4-70 A.00 7.70 No. 35. 4.00 A.10 A.11 shee.3 No. 18 and lighter, over 30 inches wide, not less than a.r.c extra.
Stanley Ivory   dis 55&to 2   Stanley Ivory   dis 55&to 2   Stanley Ivory   dis 55&to 2   Stanley Ivory   dis 30&to 35,to 35,to 35,to 1, lbs	All shee.3 No. 18 and lighter, over 30 inches wide, not less than a tree extra.  Wood's Fatent Planished Sheet.  ist quality (A)
Lbs 80 100 169 200 260 200	
Steel and Irondis 50 %; full case, dis 50&10 % Try Squares, Stanley	Octobar   Color   Co
Segunres. Steel and Iron	1% by % by 4-163.00   1 by % by 4-163.50   2 % 3, 3 % and nob
Clipper No. 5, Painted Red, Boxed and Sharpened	156, 156 2 and 354 inch
Disston's Hand, Panel and Rip dis 20 % Disston's Circular	154 by 54 by 6-16 3.00   1 by 54 by 5-16 3.50   1 by 54 by 5-16 3.50   1 by 54 by 5-16 3.50   154 by 5-16 3.50   154 by 5-16 3.50   154 by 1 lin. 3.50   154 by 1 lin. 3.50   154 by 1 lin. 3.50   155 by 54 3.50   156 by 54 3.50   3.50
Duston's Circular  Cross-Cut No. 2, Plain Tooth dis 40%  Patent Tooth dis 40%  Patent Tooth dis 40%  Champion Tooth dis 40%  Boynton's Lightning Cross Cut, new list. dis 40%  Lightning Buck Saws, cross bar. dis 40%	8 lbs. to the yard
Oliver Ames & Sons, new list	Splice Joints for 12, 16 and so-lb. Rail, 4ee each; 28 and 30 lb. Kail. 50 each; 40 lb., 60 each; 38 3/4 by 8/4 and 1/4 Splikes for 20 and 2-lb. Rail
Lightning Huck Saws, cross bar. dis so \$   Shevels and Spades.   dis 15 8     Oliver Ames & Sons, new list.   dis 15 8     Grimths   dis 50 8 cols.     Edwland   dis 50 8 cols.     Sad Irons	254 and 3 by 36 " 12 and r6-lb. " 186 256 by 10 " 5-lb. Rail Flat Rails.—Punched and Countersunk.
Weshies Waren	1% by %
Axe. " 13e net	
	United National Oct.  Norway 1
Flat Head Iron, new list Dec. s7dis, so & 10 % Flat Head Brase, new list Dec. s7die 30 & 20 %	W Boom Long

HEIRO	N	A	G	Ð
Nat See Pittaburgh Trade Repo				-
Bee Pittaburgh Trade Repc Best Quality Refl Square. Flat. Octa \$60 2 inches, inclusive 1-16 and 2/s to 3 inches, \$4 and 3/s to 4 7-32 and 4/s to 5 7-32 and 4/s to 5 7-32 inch. \$4 inch. Oil Well Steel Forsings.	*********			306
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Trap Spring Steel Forged Crank Pins and Lath Piston Rods, plain Forged to shape Grued to shapes Crucchie. Open tieal Bottes Wise Bases	e Spindk	essema		856c .11c .856c .11c .856c .11c
thick Boller, Fire-Box and Flue S Boller, Fire-Box and Flue S Boller, Fire-Box and Flue S Circulars and semi-circulars ately Smoke Stack, to snape. Locomotive Tank Steel.  Square, Round, File Cast unch and over	Steet	ordere	d sep	ar- ac ac ac
SWEET Clause & for the contract of the contract of				1007
Taper, 34-inch and over Taper, 34-inch and over Horse and Shoe Rasp Spring Ca. Spiral and Taper, cut to leng 1x4 and over Tire Cast				
1X3-10, 35X3-10 and 34. 1 and 1-10x3-6 and 3-22, 35X3-10 34 and 5-25-6 and 3-32 and 12 g Solid Safe Cast Steel. Three and Five Ply Cast Stee Agreeutivate Impile Fork and Rake, Crucible Horse Rake Steel	and c-32	it Stee		8568 98 9560 11.0 7560 .100
Hoe Crucible	i in Mars	cible		9560 5560 6560
Axie Billets Sleiph Shoe out to longths i Soythe Back Steel. Grain Drill Bars. Polints Rolling Coulter Blanks. cut Treah. Rolling Coulter Blanks. cut Teeth. Rolled Hammer Billets Terms.—Four months: 1 pe if remitted within	and taper	hed	& for c	4590 4590 40 40 40 40 6590 8590 4590 4590 888,
Relis and a Furnace Floor and Straight Housings and Castings net o Guide Plates Spindies and coupling boxe	cherwise	tes.	led	2140
Guide Plates.  Npindies and coupling boxes sand Rolls and Plaions. large British Mill Castings.  Rolling Mill Castings under Spur and Bevel Wheels, large  "over so Inches.  "over so Inches.  Engine Castings, light.  "heave."	11			4590 4590 -4590 -4 C
6 to 7 in. diam. 7 to 20 in. i 8 to 15 in. 6 8 to 40 in. 25 to 24 in. 15 to 77 in.	nts win a quoted ted Les a oil in ar keg p e: assori kegs, oie ail poin	be may being tel. Kogs. Flor.; ted., I to the tel.	ade at met.  5ide: ( 12id m o 5 m c	n 24 Tip ans.
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II X 12 60 10 X 24.  IE X 22 10 20 2X 30.  12 X 26 10 24 X 30.  15 X 36 10 24 X 30.  15 X 36 10 25 X 36 10 30 X 30.  30 X 36 10 30 X 40.  30 X 30 10 30 X 40.  34 X 36 10 34 X 40.  34 X 36 10 34 X 40.  35 X 50 10 34 X 50.	14,50 17,25 19,75 21,00 23,25 24,00 25,75 25,75 29,25 33,25	11.74 13.25 15.75 17.25 18.50 21.25 22.50 23.35 35.00 27.75 30.00	10,75 12,50 14,00 14,50 15,75 17,25 18,00 19,35 21,75 24,00 27,75	10.00
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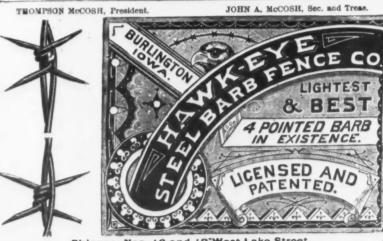
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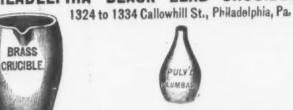


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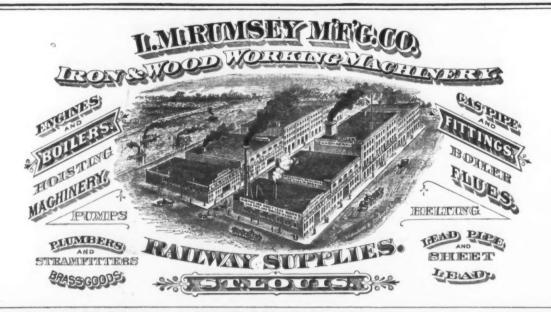
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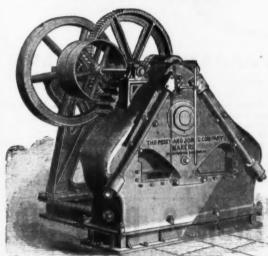
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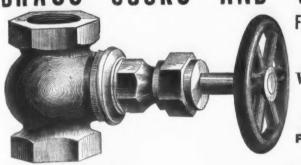
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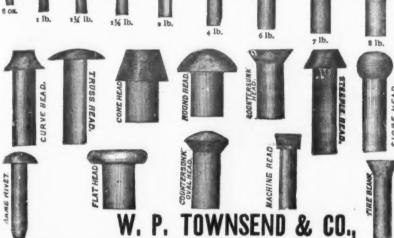
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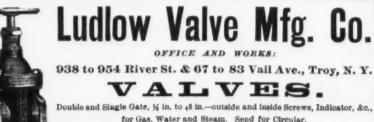
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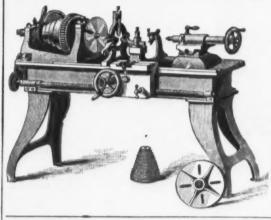
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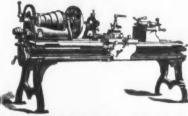
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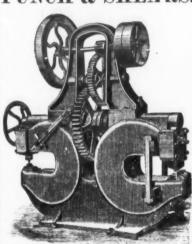
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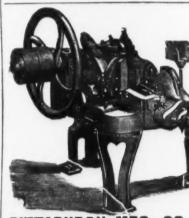
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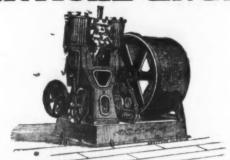
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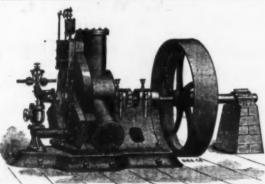
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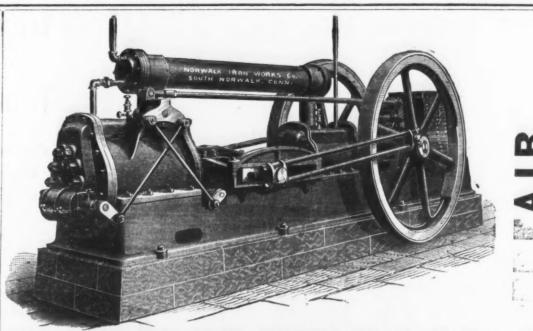
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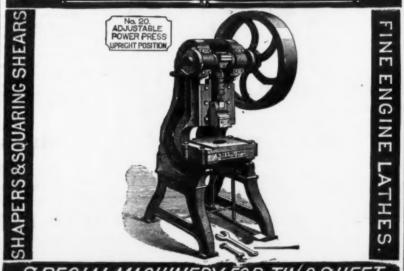
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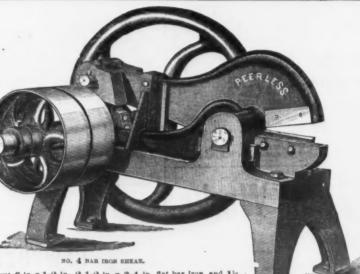
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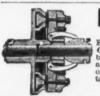
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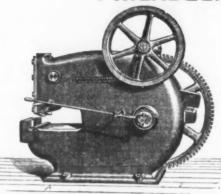
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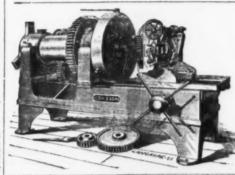
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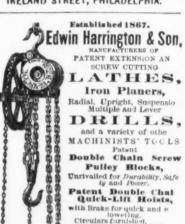


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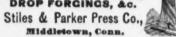
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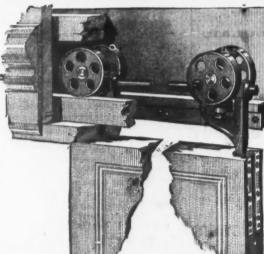
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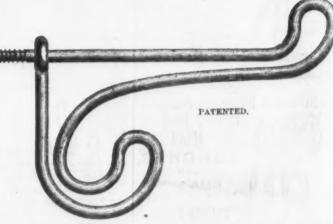
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